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SOME AMERICAN MEDICAL BOTANISTS *

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BALTIMORE

One of the first reuniting links between England and the Pilgrim Fathers was a floral one. Confronted at the outset with epidemics incidental to acclimatization and poor sanitation, the few doctors in America eagerly scanned the ponderous herbals they had brought over and searched the country in hopes of finding the well-known febrifuges and other remedies they had used in the old country. Ship's captains were given letters to friends asking for plants and seeds required, but these, too, received after interminable delays, had to become acclimatized. In searching for remedies many new and wonderful plants were discovered and sent as specimens or exchanges to the great European botanists, arousing their eager interest in the new country and a great desire to have such plants in the botanic gardens then flourishing.

Boerhaave at Leyden was in the habit of making large exchanges, and Dr. Fothergill, who sent us the anatomic pictures for the University of Pennsylvania, now in the museum of the Pennsylvania Hospital, had 4,000 plants in his botanical garden near London. Dr. John Mitchell, who came over to Virginia in 1700, sent plants to Linnæus and to Bartram, and in 1763 refers to the white double daffodil brought over by the first settlers. American oaks planted centuries ago still flourish in England, while wistaria and "Virginia creeper" still climb over the walls of hundreds of houses in foggy London. Sponsorial compliments abounded in floral godchildren such as the *Mitchella, Gardenia* and *Bigelowia,* which were as tenderly reared in Europe as were the *Boerhaavia, Meadia* and *Lettsomia* in America. There were anxious periods of waiting; for a voyage of seventy days or more wrought havoc with plants, insects and reptiles. Even war did not upset botanical sympathies and the published correspondence in times of warfare and Indian raid shows chiefly anxiety lest, a ship being captured by the enemy, seeds and plants should be thrown overboard. Michaux, the great botanist, speaks of the French Revolution (1789) merely as a hindrance to his gathering specimens from abroad. John Bartram, in 1763, laments that a government scheme of exploring Louisiana cannot be carried out because the scientists would be exposed to "the greatest savage cruelty of the gun, tomahawk and torture" by the Indians. He did venture once with a guide, but says, "An Indian met me and pulled off my hat in a great passion and chawed it all around to shew me how he would eat me if I came again."

Of the young British doctors who came over here, John Mitchell was the earliest. This botanist, the date of whose birth is uncertain, as there were several scholarly John Mitchells of that time, was born, educated and took his M.D. in England. He came to America about 1700 and lived in Virginia at Urbana on the Rappahannock. The climate and people must have pleased him for he stayed about forty-seven years, interested in everything scientific, especially in botany, making long excursions to gather plants. He wrote also on electricity, yellow fever and politics, and published a map of the British and French dominions in America which is said to "mark an era in the geography of North America." Like most doctors and scientists of that time, he kept his interests wide by corresponding with European confrères, especially with Linnæus, who named the partridge vine or checkerberry after him (*Mitchella repens*).

Mitchell returned to London about 1747 and became an F. R. S., the fruits of his literary solitude in America being given to the Royal Society in several addresses, among them one on "The Preparation and Use of Various Kinds of Potash," and one on "The Force of Electrical Cohesion." His biographers simply state that "he died in March, 1768." Where he was buried, no one knows and few even know that he is immortalized in the sweet, lowly little *Mitchella repens.*

Like Mitchell, John Clayton was born and educated in England and came over to America to join his father, the Governor-General of Virginia, about five years after Mitchell came here. He had, too, a similar compliment from Linnæus in having one of our most delicate, graceful, much-loved little flowers, the spring beauty, called after him *Claytonia virginica.*

Whether Clayton was a graduate physician or not, he practiced as one, but it is only as a botanist that any record of his work survives. He kept a noted botanical garden and published a work of two volumes on botany, and made a collection of dried plants, a "Hortus Siccus," of folio size, with marginal notes and directions to the engraver in preparing the plates for the proposed work. These were left in the charge of the county clerk of New Kent and were unfortunately burned, together with the county records at the beginning of the Revolution.

Numerous articles descriptive of the plants he discovered were published in the *Philosophical Transactions of the Royal Society of London.* Several of these treated of medicinal plants, others of the species of tobacco and their cultivation. His chief work was his "Flora Virginica," editions of which were issued from the press at Leyden in 1739, 1743 and 1782, which is referred to by all writers on North American plants.

When over 70 he made a botanical exploring tour of Orange County, Virginia, then largely a wilderness.

* The substance of an Address before the Medical-Historical Society of Chicago, 1910. The article is here somewhat abbreviated, for reasons of space, but it appears in full in the author's reprints.

This old naturalist was a pious member of the Church of England. It was impossible, he declared, that a botanist could be an atheist, seeing, as he did, the infinite wisdom and skill displayed in the smallest plant. A scientist of world-wide reputation and a citizen of sterling integrity, after a long and useful life, he passed away Dec. 15, 1773.

The third link in the botanic chain was another young doctor from Britain, "a truly great philosopher and a very great and ingenious botanist," who came to be lieutenant-governor of New York. He was the son of the Rev. Alexander Colden, minister in Dunse, Scotland, and was born Feb. 17, 1688; he was educated at and took his M.D. from Edinburgh University. Attracted by the fame of William Penn's colony, he came over to America and practiced in Pennsylvania for seven years, and then returned to England.

From London he made a short visit to Scotland, long enough, however, to get him a wife, Miss Christie; then he returned to Pennsylvania and became a public character, holding in succession the offices of surveyor-general, master in chancery and lieutenant-governor.

The Linnæan system was introduced by Colden into America only a few months after its publication in Europe. To the author himself Colden sent a description of some three or four hundred American plants and Linnæus gracefully acknowledged the gift by publishing the record in his "Acta Upsaliensa," and by giving the name *Coldenia* to a genus of boraginaceous herbs of the tribe *Ehretieæ*, though a prettier version is that Miss Jane Colden sent him a specimen and he named it after her, a compliment he was fond of paying ladies.

Colden made up his mind in 1775 that the stamped paper made necessary by Grenville's Stamp Act should be used, but the official distributor of stamps refused to receive it, so Colden, sympathizing with the English, went off to Fort George with a garrison of marines. When the New York populace protested, he ordered the marines to fire. They would not, and the people seized Colden's carriages and burnt them along with effigies of Colden and the devil. The following year brought the Declaration of Independence, but Colden had already retired to a large grant of land called Coldenham, near Newburgh, where he wholly gave himself to science, especially to botany and mathematics. Here he wrote, in 1774, his "Plantæ Coldenhamæ," the earliest treatise on the botany of New York. His home was a rendezvous for all learned men; his greatest pleasure was to receive them there. On Sept. 28, 1776, he died, leaving a son distinguished as a mathematician and a philosopher.

Two of our greatest pioneer botanists, John Bartram and Humphrey Marshall, of North England stock, were not physicians. They had settled in Pennsylvania and were most enthusiastic, genial friends with all the European botanists and intimate with our own men, Colden among them.

It is Humphrey Marshall's son, Moses, a physician, who next claims our attention. The fame of this expert medical botanist has been somewhat eclipsed by that of his uncle Humphrey, of whom Darlington left studious and loving record in his "Memorials of Bartram and Marshall," but Moses made several long exploring journeys through the wilds of the West and rendered valuable assistance to his uncle in preparing the "Arbustum Americanum."

He was the son, as I have said, of James and Sarah Marshall, and the grandson of Abram Marshall, who came to Delaware in 1697 from Gratton, Derbyshire, England. He studied medicine under Dr. Nicholas Way of Wilmington, but never held a medical degree, none being required at that time for practicing in Pennsylvania; but, as it was customary to attend a course of lectures, he went to those by Shippen and Rush in Philadelphia.

Then followed a year or two employed in desultory medical work, including inoculations round about Londongrove, Pennsylvania, and in keeping an apothecary's shop "which came to nothing and less." The truth was that he had not found his true vocation—botanizing. His uncle writes to Franklin in 1785, and Moses himself to Dr. Lettsom in London, suggesting a government-supported exploration of the Western States. In 1786, Sir Joseph Banks wrote to Humphrey Marshall asking for one hundredweight of fresh ginseng roots. Moses spent twenty days in the Alleghanies getting these and charged Lettsom $1.25 a pound. Lettsom and he seem to have carried on a brisk correspondence, especially concerning the *Talinum teretifolium*, hitherto undescribed by botanists. He sends Lettsom three tortoises and some plants, one of which, a polygala, is thus mentioned in a letter.

"Should this prove to be a new genus, I have designed the appellation of *Lettsomia*, with this provision, that it might not be unpleasing to thee, and that in the interim I should not be able to discover a plant more exalted, conspicuous and worthy."

He also asks for "a surgeon's pouch of instruments" to be sent him, and Lettsom hastens to acknowledge the compliment of a floral godchild and encloses 10 pounds in case Moses should be out of pocket for seeds asked for. A plant was also named *Marshallia* after Moses, which many authorities have claimed for his uncle. Two letters of 1792 have recently come to light which settle the question.

Marshall's letters speak of many long trips which meant fatigue, danger and expense. His appointment as justice of the peace curtailed excursions, but he continued exchanging specimens and seeds with European confrères. About 1797 he married Alice Pennock and had six children. After his uncle's death, there is not much told of his scientific work, and he died Oct. 13, 1813, leaving behind a friend whom I now introduce:

Alexander Garden was the greatest friend of Marshall Senior. He had followed in the wake of many English doctors and scientists eager to drink in all that London and Edinburgh and European doctors could teach them.

Travel fever had laid strong hold in 1750 on this Scotch lad in Aberdeen, who was destined to be a botanist in America. Born about 1728, a son of the Rev. Alexander Garden of Aberdeen, he not only came to the United States but stayed thirty years, yet not one in a thousand, either here or in England, knows after whom the genus *Gardenia* was named.

His medical education was obtained with the celebrated Dr. John Gregory in Edinburgh and at Aberdeen University. He arrived in South Carolina about 1750 and settled down to practice with a Dr. Rose in Prince William parish. At once he started on his favorite study of botany, but ill health compelled a voyage northward and he was offered, but declined, a professorship in the New York Medical College. Returning to Charleston, he began a successful practice. An odd little glimpse of his life at this time is given in a letter to John Bartram, the botanist:

Think that I am here, confined to the sandy streets of Charleston, where the ox, where the ass, and where men as

stupid as either fill up the vacant space while *you* range the green fields of Florida.

The study of zoölogy, especially fishes and reptiles, filled up the leisure left from a large practice and botanizing, and he kept up an active correspondence also with Linnæus. It was John Ellis, the botanist, who named the beautiful Cape jessamine *Gardenia* in his honor.

About 1772 Garden was made a Fellow of the Royal Society of London and eventually its vice-president. Eager to extend his knowledge, in 1755 he accompanied James Glen, governor of South Carolina, when the latter penetrated the Indian country and formed a treaty with the Cherokees.

He introduced into medical use the *Spigelia marilandica* or Maryland pinkroot, as a vermifuge. Anyone who would like to know more of Garden's travels and pretty, reverent letters about Nature should get the "Linnæan Correspondence," edited by Sir J. E. Smith, London, 1821.

Tuberculosis, hitherto successfully fought, began to tell on Garden's health in 1783, although it was hoped, in vain, that "revisiting the haunts of his youth and the pleasing recollections of juvenile scenes would have salutary influence in arresting the disease. The good time every learned man tried to give him as guest during his progress homeward and while traveling in Europe exhausted his strength. He stayed with his wife and two daughters in Cecil Street, off the Strand, London, a narrow street up which to-day as then creep fog and mists from the river; a bad exchange for Carolina sunshine. There, patiently realizing that nothing could be done, he put on paper all he could of his Carolina work, enjoyed the men who flocked to him and got ready for his last long journey. He died peacefully in London, 1792.

Meanwhile, botanists were increasing in number in the States, in Pennsylvania especially, which gave us our next worthy, Adam Kuhn.

Kuhn was born at Germantown, near Philadelphia, Nov. 17, 1741. His grandfather, John Christopher Kuhn, and his father, Dr. Adam Simon Kuhn, came from Heilbronn, Swabia, to Philadelphia in September, 1733. Adam first studied medicine with his father, then sailed for Europe in 1761 and arrived at Upsal by way of London.

Linnæus, following a pretty fancy, named an American plant Kuhnia (*Kuhnia eupatorioides*), after his pupil, and when the latter returned to Philadelphia wrote very intimate and graceful letters to him in Latin. One has this injunction in it: "I pray and entreat send me some seeds and plants, among which I ardently desire the seeds of the *Kuhnia*, which perished in our garden."

Kuhn went to London in 1764 and studied there awhile, and in 1767 was in Edinburgh, where he took his M.D. the same year. His thesis on "De Lavatione Frigida," or the use of cold bathing in fevers, was dedicated to his friend Linnæus. He visited France, Holland and Germany, but whether before or after Edinburgh is not clear. In 1768, after his return to Philadelphia, he became professor of materia medica and botany in the University of Philadelphia, being the first professor of the latter science in America.

He did not marry until he was 39; "he had two sons, respectable characters," by his wife, Elizabeth, daughter of Isaac Hartman of St. Croix.

When 73 he "grieved" his patients by giving up practice, and in June, 1817, began to feel conscious that life was ending. After a short confinement of three weeks to the house, but suffering no pain, Adam Kuhn passed away on July 5, 1817, in full serenity of mind and heart, leaving behind him a friend and fellow-worker in natural science named Caspar Wistar.

Wistaria, the beautiful flowering vine, is known, of course, to all: "Wistar parties" to most of us, so it comes to pass that the memory of one of our great surgeons is conserved in two emblems of festivity rather than, as he perhaps imagined, in his original observation and "Description of the Posterior Portion of the Ethmoid Bone with the Triangular Bones Attached." (Thacher.)

His grandfather, Caspar Wistar, a German, came to Philadelphia in 1717, and Dr. Wistar was born there in 1761. He had the advantage as a medical student of sitting under Morgan, Shippen, Rush and Kuhn, after which, like most men of his day, he went to Europe, taking his M.D. at Edinburgh University. His inaugural thesis, "De Animo Demisso," was dedicated to Franklin and Cullen. He studied under Cullen and, rare honor for a youthful stranger, was twice president of the Royal Medical Society of Edinburgh.

On his return to Philadelphia after three years, he was associated with Dr. John Jones, author of the first work on surgery which appeared in America, who was delighted with Wistar's surgical skill. Wistar became professor of chemistry and physiology in the College of Philadelphia, and held other appointments, among them the adjunct professorship of anatomy and surgery with William Shippen. He wrote "A System of Anatomy" for his students, and spared no pains in securing models for his class. His memory has been perpetuated in the Wistar Institute of Anatomy and Biology in West Philadelphia. The work of the Historical and Literary Committee of the American Philosophical Society aroused his keenest interest and he did much to stimulate the society to collect the fleeting materials of American history. He kept up a delightful correspondence with Correa da Serra, the botanist who named the wistaria and was a frequent guest at Wistar's house. Wistar also kept in touch with Humboldt, Soemmering, Camper, Michaux, Marshall and various English scientists.

His biographers tell us that soon after his return "he was united in matrimony" with Isabella Marshall, but she died childless. Eight years later he married Elizabeth Mifflin, who made him happy with two sons and a daughter. He was a Quaker and a religious man, and brought up his children to revere God's word, of which he carried a cherished copy given him by Dr. Charles Stuart of Edinburg. He often took his children out in the carriage with him to talk of the teachings of the Bible.

Troubled for many years with an organic affection of the heart, he died comparatively young, on Jan. 18, 1818, working almost to the last.

Among Wistar's college friends was the handsome Benjamin Barton, destined to become one of America's foremost botanists. He was the son of the Rev. Thomas Barton, an Episcopal minister, and was born Feb. 10, 1776, in Lancaster, Pa. He was but 8 when his mother died and but 14 when left an orphan. He went to live with an elder brother and studied at the College of Philadelphia, beginning to study medicine under Dr. William Shippen, Jr. While still Shippen's pupil, young Barton journeyed with his maternal uncle, David Rittenhouse, and the other commissioners appointed to survey the western boundary of Pennsylvania, and thus had his attention directed to the study of the Indian tribes, a

subject which possessed the greatest interest for him throughout life. In 1786, he went abroad to pursue his medical and scientific studies, first in Edinburgh and London, afterward going to Göttingen, where he received his medical degree.

His reasons for not taking the degree of M.D. to which he was entitled by his studies at Edinburgh University were set forth in a letter to his brother, written in London, 1789, in which he states that he preferred getting his diploma from Göttingen because he was dissatisfied with the discourteous manner in which two of the professors at the University of Edinburgh treated him.

While living in London, he published a tract entitled "Observations on Some Parts of Natural History, to Which is Prefixed an Account of Some Considerable Vestiges of an Ancient Date Which Have Been Discovered in Different Parts of North America." This little book he afterwards characterized as a "premature work" and regretted its many deficiencies.

Dr. Barton returned to Philadelphia and practiced medicine in 1789, in the same year being appointed professor of natural history and botany in the College of Philadelphia, a position he held after the union of the College of Philadelphia with the University of the State of Pennsylvania in 1791.

On the resignation of Dr. Griffith from the chair of materia medica in Pennsylvania, Dr. Barton was appointed. When Benjamin Rush died, Barton was appointed professor of the theory and practice of medicine, and continued to hold also the chair of natural history.

His published works include "The Elements of Zoölogy and Botany," or "Outlines of the Natural History of Vegetables"; "Collections for an Essay toward the Materia Medica of the United States"; "Fragments of the Natural History of Pennsylvania"; "Essay on the Fascinating Power Ascribed to Serpents, etc."; "Views of the Origin of the Tribes and Nations of America."

In 1805 he started publishing the "Medical and Physical Journal" and also wrote many short articles on topics connected with medicine and history and archeology, much of his work appearing in the *Transactions of the American Philosophical Society.*

During his early years he was greatly afflicted with hemorrhage and gout. He had given only two courses as the successor of Rush when he had to seek relief by a sea voyage. He sailed to France in 1815, returning disheartened by way of England. At New York he was afflicted with hydrothorax. Finally, reaching home very ill, he became rapidly worse and was found dead in bed on the morning of Dec. 19, 1815. Feverishly anxious to work, three days before his death he wrote a paper concerning a genus of plants named in his honor by Nuttall, a young English botanist whom Barton had financed for a scientific tour in the southern states. The plants were of the class *Icosandria monogynia* (Linnæan system) found in hilly districts between the Platte and the Andes and named *Bartonia polypetala* and *Bartonia superba.*

William Darlington was another of the famous group of scientists exploring, writing and keeping up a keen scientific correspondence with each other.

The seeming hardship of having to work on a farm and lead an outdoor life may have stimulated William Darlington's botanical interests. His great grandfather, Abraham Darlington, had come over from England to Pennsylvania when a young man and settled near Chester. William had simply a common-school education and, hungry for more, persuaded his father to let him study medicine with Dr. John Vaughan of Wilmington, Delaware. He took also private French lessons, studied hard at Latin, Spanish and German, and received his M.D. from the University of Pennsylvania in 1804.

A voyage to India as ship's surgeon gave him leisure for study and reflection. The following year he settled down to practice in West Chester after marrying Catherine, daughter of General John Lacey of New Jersey.

In the midst of much civic business, he finds time to botanize, also to found the Chester County Cabinet of Natural Science and to publish his first botanical work: "Florula Cestrica, or Catalogue of Plants Growing Round West Chester, Pennsylvania."

That which pleased him most was the perpetuation of his name in flower form. Professor de Candolle of Geneva named a genus after him, but it did not prove to be sufficiently distinct, and another friend, Professor Torrey of New York, dedicated to him a finer plant of the order *Saraceniaceæ* (pitcher-plants), which grow in California. Darlington certainly deserved the honor, for a more generous man never lived. This was shown in his gathering together all the letters and memoranda of Dr. William Baldwin, a zealous botanist who died still young while on a botanizing expedition up the Missouri. Darlington called the book "Reliquiæ Baldwinianæ" (1843), and six years later made all botanists his debtors by his loving work shown in "The Memorials of John Bartram and Humphrey Marshall" (1849), the careful footnotes alone constituting valuable references to the botanical lore of that period.

The loss of a soldier son from fever off the African coast and the death of his wife in 1845-6 broke his health, and in the spring of 1862 Darlington had a slight attack of paralysis, followed in 1863 by another, from which he died on Thursday, April 23, 1863, nearly 81 years old and with mind still unimpaired.

Massachusetts has the honor of giving us a great educational reformer, one of America's most learned botanists, Jacob Bigelow, closely associated with the leading scientists of the world. He was of New England ancestry, his people coming over about 1640 and settling in Watertown, Mass. Jacob was the son of Jacob Bigelow, a Congregational minister who married a daughter of Gershom Flagg.

Jacob the younger was born Feb. 27, 1787, and his childhood was passed in the country at farm work, with scanty schooling. Painfully his father managed to send him to Harvard, where he graduated in 1806, and in 1808 attended the medical lectures there as a pupil under Dr. John Gorham and taught in the Boston Latin School. Then he went to Philadelphia to attend the lectures of Rush, Wistar, Barton and Coxe and to receive the doctor's degree. To bring himself early before the professional public he took to writing and secured the Boylston prize four successive years. So promising seemed his career that the elder James Jackson chose him as associate in practice. He was a born artist, craftsman and inventor. When occasion came for illustrating his "Medical Botany" with colored engravings and before modern photography and lithography were invented he devised a means of illustration which proved both practical and beautiful and furnished sixty plates and 6,000 colored engravings for this monumental and now rare work.

Botany was his great hobby and his "Florula Bostoniensis" was a simple, charming book, well known to our grandfathers. In 1815 he was appointed lecturer on materia medica and botany, and two years later when

he was 30 his title was changed to professor. Then, too, it is pleasant to believe that Count Rumford left behind him in his native state a young disciple as first Rumford professor who fulfilled all his desires.

But the work which brought Bigelow into closest contact with European savants and gave him honor in his own country was the elaborate series published under the title "American Medical Botany," which was noted for its finish and beauty and avoidance of technical terms. In 1820, when 33, he was associated with Spaulding, Hewson, Ives and Butts in editing the United States Pharmacopeia. He followed up this labor by adding Bigelow's Sequel, a perspicuous commentary on current remedies.

Three years previously he had married Mary, daughter of Colonel William Scollay of Boston, and they had five children, one son, Harry, becoming a doctor.

Bigelow was still active in his declining years and became a most distinguished and approachable old-man oracle. He was blind nearly five years, and bedridden, but with mind undimmed at 92. "His religion, not for speech, discussion or profession, was that of a serious man living very near the realities of life!" Unforgotten to the end, though long inactive, he died January, 1879, and was buried in the beautiful Mount Auburn Cemetery which he himself had originated (Mumford).

Among the pupils who loved Caspar Wistar, and was ever a welcome guest at his house, was a Kentucky lad named Charles Short, son of Peyton Short, born in Surrey County, Virginia, in 1794.

I can touch now only on the botanical side of Short. He graduated from the University of Pennsylvania when 21 with a thesis on the "Medical Virtues of Juniperus Sabina," and turned his attention that same year to wooing and wedding his stepsister, Jane Churchill. The young couple traveled home to Kentucky in a spring cart, Short botanizing on the way, and the journey, whether owing to Jane or to the specimens, is described as "replete with interest." So also was the scene of his first settled practice, Hopkinsville, then a wild, romantic district where he gathered patients and plants, soon getting into touch with scientific men everywhere by exchanging specimens. This gave him reputation, and led eventually to an invitation, which he accepted, to become professor of natural medicine and medical botany in Transylvania University. Benjamin W. Dudley and Daniel Drake were his colleagues. Short's heart was thoroughly in his work and he stayed there until internal dissensions in 1837 made Short and Drake accept the same professorships in the University of Louisville, whence, in 1849, Short went away to Hayfield, his country home, five miles from the city, and for the last fourteen years of his life cultivated plants and friendships, wrote and read, took long journeys and made the finest herbarium in the country.

Among his most prominent writings were "Notices of Western Botany and Conchology," a paper published jointly by himself and Mr. H. Halbert Eaton (1830); "Instructions for the Gathering and Preservation of Plants in Herbaria"; a "Catalogue of the Plants of Kentucky"; "The Bibliographia Botanica" (1836); "Sketch of the Progress of Botany in Illinois" (1845).

The name of Dr. Short is commemorated by a number of plants: the genus *Shortia, Vesicaria shortii, Phaca shortiana, Solidago shortii and Carex shortiana.*

Books, too, were a huge delight to Dr. Short. He gathered a fine library, about 3,000 books, one-fourth botanical, but left wall space for engravings of his literary heroes, Walter Scott and Fielding. Some—most, perhaps—of his books came from London. We hear of his rebinding with his own hands those which required it, which marks him as a real book-lover.

One grieves a little to learn that a curious debility and ennui came over him when he was 67; that the old interests failed to attract, and two years later pneumonia, following on typhoid, ended his life on March 7, 1863.

Among the other doctors—some not botanists—who have had plants named after them, are notably: Goodyear, William Baldwin, David Townsend, Douglas Houghton, William Douglass, Benjamin Franklin, James McBride, Peter Kalm, Nathaniel Chapman, Asa Gray, John Torrey, George Engelmann and Joseph Le Conte. Some of these I propose to include in a volume on "American Medical Botanists" I have in hand, and I shall be grateful for any names additional to my list or interesting facts concerning our botanical confrères.

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END-RESULTS IN GALL-BLADDER SURGERY *

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Notwithstanding the enormous literature on the subject of gall-bladder surgery which has accumulated during recent years, there have, as yet, been only a few papers published which deal in a comprehensive manner with the final results obtained by operation.

All who have had any experience with gall-bladder surgery know that, on the whole, the end-results have been very satisfactory, but that they can be improved in the future admits of no doubt. Such improvement must come largely through careful study of the successes and failures of the past, and the investigation on which this paper is based was undertaken with the idea, that the knowledge so gained might enable us in the future to eliminate a certain proportion of the unsatisfactory late results.

This study has consisted of a review of the literature on the subject, together with a critical analysis of the end-results obtained in 350 operative cases.

For the material which forms the chief basis of this paper, I am indebted to my former chief, Dr. A. J. Ochsner, of Chicago, who has kindly placed at my disposal the large number of cases of gall-bladder disease in which he has operated at the Augustana Hospital. During the past year my assistant, Dr. Mason, and I have corresponded with 290 of Dr. Ochsner's patients and have been able to ascertain definitely the end-results of the operative treatment in this number.

In addition to Dr. Ochsner's, I have included sixty cases in which my associate, Dr. McMullen, and I have operated at the Ellis and Physicians' Hospitals, Schenectady, N. Y., making in all a total of 350 cases.

In the literature, I have been able to collect only the papers of Taite,[1] Kehr,[2] McWilliams[3] and Munroe,[4] which deal in anything like a comprehensive manner with the final results obtained by operation. A summary

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Taite, L.: Edinburgh Med. Jour., 1889, xxxv, 305.
2. Kehr, H.: München. med. Wchnschr., 1904, ii, 602; 1908, clv, 2073.
3. McWilliams, C. A.: New York Med. Jour., 1906, lxxxiii, 1109.
4. Munroe, J. C.: Boston Med. and Surg. Jour., 1909, clx, 359.

of the facts given by these writers is shown in Table 1, from which it is seen that the cures have ranged from 65 to 98 per cent., and that Kehr, who reports the largest series of cases, has had from 84 to 90 per cent. of cures.

In attempting to estimate the end-results obtained in gall-bladder patients, one encounters varying degrees of improvement in individual cases, so that it is often difficult to say whether a given patient has been really cured or not. In this study the estimates given by the patients themselves have been taken almost at their face value. Only those patients who, in answer to our questions, have stated that they were entirely cured of the trouble from which relief was sought, have been classified as cured. Those who really consider themselves as cured, but who have qualified the statement by mentioning any minor discomforts, which may have resulted either from the operation or from the former disease, have been classified as satisfactorily improved, the patients themselves being perfectly satisfied with the results of the operation. Patients still complaining of any symptoms referable to the biliary system, even though they consider themselves greatly benefited by the operation, have been classified as improved. All patients in whom the benefits derived from the operation have not been unquestionable, have been classified as no better.

TABLE 1.—SUMMARY OF REPORTED RESULTS

Surgeon	Date of Report	No. of Cases	Cured No.	Cured %	Improved No.	Improved %	Not Improved No.	Not Improved %	Stones Overlooked No.	Stones Overlooked %	Secondary Operations No.	Secondary Operations %	Postoperative Hernia No.	Postoperative Hernia %	Persistent Fistula No.	Persistent Fistula %	Adhesion and Sympt No.	Adhesion and Sympt %	Stomach Dislocations No.	Stomach Dislocations %	Recurrence of Calculi No.	Recurrence of Calculi %
Taite	1889	52	51	98	1	..	..	..	.....	..	..	..	..	..	1	..	..	..	..	..	0	..
Kehr	1904	350	311	89	..	..	..	..	9	2.6	..	..	11	3	2	..	12	3.4	..	..	0	..
McWilliams*	1906	69	45	69	7	10	16	23	7	10	12	..	6	9	7	10	4	7	4	7	1	..
Kehr	1908	885	84	90	..	..	..	16	2–3	....	..	..	..	5	..	..	..	8.7	..	..	..	..
Munroe	1909	172	..	79	..	..	..	..	.....	..	..	..	..	..	..	..	6	2.2	..	..	..	..
Ochsner-Stanton	1911	245	209	85	..	9	15	6	3	1	5	2	7	3	1	..	10	4.2	..	..	3	1

* Presbyterian Hospital.

TABLE 2.—END-RESULTS GALL-STONE CASES

Ochsner	196
McMullen and Stanton	49
Total	245

Pathological Diagnosis	Total No.	Cured No.	Cured %	Satisfactorily Improved No.	Satisfactorily Improved %	Improved No.	Improved %	No Better No.	No Better %
All cases	245	194	79	15	6	21	9	15	6
Stones uncomplicated in gall-bladder	107	96	90	5	4.6	5	4.6	1	1
Stones in cystic duct	32	29	90	..	...	2	...	1	..
Stones in common duct	19	13	70	2	10	2	...	2	..
Stones with cholecystitis	27	23	85	2	7	1	...	1	..
Stones with empyema of gall-bladder	12	12	100	..	...	..	...	..	..
Stones with chronic pancreatitis	11	10	91	..	...	1	...	..	..
Stones with extensive adhesions	19	16	84	..	...	3	...	..	..
Stones with coincident pelvic operations	42	28	66	4	10	6	15	4	10
Stones with other miscellaneous operations	16	13	81	2	...	1	...	..	..
Stones with fistula into duodenum	1	1	..	..	...	..	...	..	..
Stones with gastric ulcer	3	2	..	..	...	..	...	1	..
Stones with carcinoma of stomach[1]	1	1	..	..	...	..	...	..	..
Stones with chronic medical complications	1	..	..	..	...	1	...	..	..
Stones overlooked	3	..	..	..	...	..	...	3	..
Cured by second operation	5	5	..	..	...	..	...	..	..

1. Anatomical diagnosis at operation; stomach not operated on; reports well four years later.

For purpose of comparison, gall-bladder cases coming to operation may be conveniently divided into four chief groups as follows:

1. True gall-stone cases with the stones in the gall-bladder or ducts or both.

2. Cases of cholecystitis with symptoms of gall-bladder or duct disease and presenting at operation more or less definite pathologic changes in the gall-bladder or ducts, without the presence of stones.

3. Cases in which the symptoms are due to the traction on the gall-bladder or ducts by adhesions, the gall-bladder being otherwise apparently normal.

4. Malignant tumors involving the gall-bladder or ducts.

GALL-STONE CASES

Of the 350 patients whose cases are included in this analysis, gall-stones were found in 245, and of these, 194, or 79 per cent., report that they were entirely cured by the operation, and an additional fifteen, or 6 per cent., consider themselves as cured, although still suffering from minor discomforts. This gives 85 per cent. in whom the results are all that could reasonably be desired.

Twenty-one, or 9 per cent., are classified as improved, and fifteen, or 6 per cent., are doubtfully improved or no better than before operation. These gall-stone cases may be further classified into groups according to the position of the stones and the complicating lesions present at the time of operation, as shown in Table 2.

1. *Gall-Stones Confined to the Gall-Bladder Without Noteworthy Complicating Lesions in the Ducts or Other Organs.*—In this group there are 107 patients, of whom ninety-six, or 90 per cent., are completely cured, and five, or 4.6 per cent., satisfactorily improved, making in all 94.6 per cent. of satisfactory results. Of the six uncured patients, five are classified as improved and one as no better. Of the five improved patients, three state that they were entirely well for a period of three years following the operation, at the end of which time one developed jaundice, which was later apparently cured at Carlsbad, while two have had a recurrence of their old painful attacks. A fourth patient has developed a troublesome postoperative hernia, and the fifth has a persistent sinus which causes but little discomfort. The unimproved patient still suffers from attacks of pain.

When we take into consideration the almost ideal end-results obtained in this group, together with the fact that the operative mortality in these uncomplicated cases is almost nil, it is difficult for us to understand the position taken by Kehr, who believes that operative interference should be limited to cases of empyema and chronic duct obstruction.

2. *Stones in the Cystic Duct.*—Of the thirty-two patients in this group, twenty-nine, or 90 per cent., are cured, two improved patients still suffer from adhesion-like pains and the one unimproved suffers from pains radiating to the right shoulder.

Nine of the twenty-nine cured patients and the one unimproved in this group had cholecystectomies, while the remaining twenty-three had cholecystotomies.

3. *Stones in Common Duct.*—Thirteen, or 70 per cent., of the nineteen patients in this group report as being entirely cured. Of the remaining six, five were undoubtedly so much benefited as to justify the operation. The other patient classified as no better still suffers from intermittent attacks of pain and jaundice.

Two of the cured patients in this group had cholecystectomies and the remaining seventeen, cholecystotomies.

4. *Gall-Stones with Empyema of Gall-Bladder.*—The twelve patients in this group all report as being entirely cured. Only three underwent cholecystectomies.

5. *Gall-Stones with Chronic Pancreatitis.* — In this group there are eleven patients with ten cured and one improved. The patient classified as improved states that she was well for three and one-half years following the operation, but that recently she feels that the old pains are returning.

6. *Extensive Adhesions in Region of Gall-Bladder.*—There are nineteen patients in this group and sixteen, or 84 per cent., report that they are well; the other three more than probable that stones would be found at operation in at least several of the twelve cases, if the patients were subjected to a second operation. In others the symptoms are undoubtedly due to imperfect drainage, the result of inflammatory strictures or adhesions.

Probably of equal practical importance to the foregoing is a group of fourteen patients, who feel that their operation was not entirely successful and yet, whose symptoms are apparently for the most part not referable to the gall-bladder. All the patients in this group had more or less extensive pelvic work done at the time of the gall-stone operation, and still complain of distressing symptoms for the most part referable to the pelvis. Strictly speaking, these failures should not be charged against gall-bladder surgery, but from the view-point of the patient and family physician, surgery is probably held responsible for the results.

Next in point of frequency and importance we find ten patients suffering from symptoms quite definitely referable to crippling adhesions. As this post-operative condition will probably be one of the last to be eliminated

TABLE 3.—GALL-STONE CASES, CHIEF SYMPTOMS AFTER OPERATION IN UNCURED PATIENTS

Original symptoms referable to gall-bladder (more or less improved)	12	Pain under right shoulder	2
Symptoms referable to complicating pelvic lesions	14	Persistent sinus	2
Adhesion-like symptoms in region of gall-bladder	10	Postoperative phlebitis and sequelæ	2
Postoperative hernia (only three producing discomfort)	7	Return of symptoms three or more years after operation	4
Stones overlooked (found at subsequent operations)	3	Since operation "has passed large number of stones"	1
Slight drag in region of wound (temporary only; classed as cured cases)	3	Slight jaundice at times (a common duct case)	1
		Gastric ulcer (gastro-enterostomy)	1
		Vomiting and eructation of gas	1

TABLE 4.—END-RESULTS CHOLECYSTITIS WITHOUT STONES

Ochsner	92
McMullen and Stanton	7
Total	99

Pathological Diagnosis	Total No.	—Cured— No.	%	Satisfactorily Improved No.	%	Improved No.	%	No Better No.	%
Total	99	46	46	10	10	23	23	19	19
"Cholecystitis;" description of lesion not given	54	26	48	5	9	10	18	13	24
Empyema gall-bladder	3	2	..	..	..	1	..	..	..
Gangrene gall-bladder	1	1	..	..	..	..	..	..	..
"Tarry bile"	3	3	..	..	..	..	..	..	..
Sandy bile	10	5	50	2	..	3	..	..	..
Cholecystitis with adhesions	14	7	50	1	..	5	..	1	..
With intermittent jaundice	4	1	..	1	..	2	..	..	..
With acute pancreatitis	1	1	..	..	..	..	..	..	..
With chronic pancreatitis	3	..	..	1	..	..	..	2	..
With postoperative sinus	2	1	..	..	..	1	..	..	..
With enteroptosis	3	..	..	..	..	..	..	3	..
With gastric ulcer	4	..	..	1	..	3	..	..	..
With complicating pelvic ops	1	..	..	..	..	1	..	..	..

In six of the cured and one of the satisfactorily improved cases cholecystectomies were performed. Remaining ninety-two all cholecystostomies.

who are classified as improved, still complain of symptoms apparently referable to the adhesions.

7. *Complications from Coincident Pelvic Operations.*—This group of forty-two patients with only twenty-eight, or 66 per cent. of cures, is by far the most unfavorable in the series. Several in this group state that they did not know they had gall-stones before the operation, but have suffered greatly from them since their removal, a fact which would strongly suggest a neurotic element. The majority of the remainder complain of symptoms referable to the pelvis, or are very indefinite in their answers.

CAUSES OF FAILURES

An analysis of the symptoms and causes producing the discomfort in the patients not cured, gives some interesting and instructive data. Thus twelve patients still complain of symptoms indistinguishable in kind from those existing before operation and believe that the gall-stones are still troubling them. In four other cases stones are known to have been overlooked, and it seems in gall-bladder surgery, it is worthy of note that all of the patients in this group think the benefits derived, entirely sufficient to justify the operation.

Seven patients state that they have postoperative hernias, but in only three instances are the hernias mentioned as causing any particular discomfort. Three patients report a return of their old symptoms, three years after operation, while a fourth one had an attack of jaundice beginning three years after operation, but was later apparently relieved by taking the cure at Carlsbad. Clinically these cases may properly be considered as instances of recurrence of stones which would give an apparent recurrence of stones in about 1 per cent of cases (see Table 3).

CHOLECYSTITIS WITHOUT STONES

In this group I have included ninety-nine patients in whom the clinical symptoms were strongly suggestive of gall-bladder disease, and whose cases were at operation considered to be cholecystitis without stones. This group of ninety-nine patients presents in many ways a

striking contrast to the true gall-stone group. In the gall-stone cases the results are well defined and of such a nature as to allow quite accurate classification, while in the cholecystitis group the patients themselves seem to have a good deal of difficulty in answering the questions. Furthermore, the gall-stone results are decidedly satisfactory, while the late results in the cholecystitis cases are often disappointing.

Of the ninety-nine patients, forty-six (46 per cent.) may be classified as cured, and most of them date their cure from the time of operation, although a few state that the return to health was a gradual one, extending over months or years, which gives one a suspicion that in these latter the operative treatment may at least have been aided by a considerable tendency toward a spontaneous subsidence of the trouble.

Ten (10 per cent.) are classified as satisfactorily improved, the patients' own estimate being taken as regards the amount of benefit derived.

Twenty-three (23 per cent.) are classified simply as improved, the majority of these patients stating that they were apparently cured for a period ranging from a month to a year or more after the operation, at the end of which time the symptoms again returned much the same as before operation.

Nineteen patients state that their trouble was either not benefited or was made worse by the operation.

Table 4 gives an analysis of the ninety-nine cases as far as the data at hand will permit.

ADHESION CASES WITHOUT STONES

In six cases the only operative interference was the loosening of adhesions between the gall-bladder and duodenum or colon, the adhesions being so placed as to make it appear at operation that the gall-bladder or ducts were kinked by the pull of the adhesions. Five of these patients now report being cured by the operation, and the uncured patient is an example of a severe grade of enteroptosis.

MALIGNANT CASES

It is possibly a significant fact that we have, so far, been unable to trace any of the patients with malignant tumors who made a primary recovery.

CONCLUSIONS

1. In the hands of those qualified to undertake the work, the operative treatment of gall-stone disease is one of the most satisfactory branches of surgery, and the cures may be safely estimated at over 80 per cent., while the majority of the remainder are so greatly benefited as fully to justify the operation.

2. The most favorable cases in all respects are those in which the stones are still confined to the gall-bladder. The operative mortality in these uncomplicated cases is almost nil, and the proved end-results are practically all that could be desired. These two facts in themselves should enable us to settle any question as to the proper time for operation.

3. The most important principle of gall-stone surgery is the complete removal of the stones, with the least possible damage to the biliary tract. Overlooked stones are probably the most important simple cause of uncured patients.

4. If, as a result of the operation, all obstructions within the biliary tract are removed, a cure is almost certain to result.

5. No evidence has been found in this series of cases to show that cholecystectomy should ever be the operation of choice in gall-stone cases, unless there be chronic cystic duct obstruction or the gall-bladder so diseased as to make a cholecystectomy technically safer and easier to perform than a cholecystostomy.

6. Every effort should be made to guard against postoperative hernia.

7. A guarded prognosis should be given in cases complicated by pelvic lesions.

8. In our series, operations for cholecystitis without stones have not shown better results than could probably have been secured by medical means, and unless better results are obtained in this class of cases in the future, surgeons should learn to avoid them.

FACTORS HOSTILE TO SUCCESS IN GALL-BLADDER SURGERY *

B. B. DAVIS, M.D.

OMAHA

In the mass of literature flooding the medical periodicals during the past few years, the technic and operative mortality of the surgery of the gall-bladder have been considered exhaustively. Final results have rarely been alluded to. This is natural during the developmental period of any surgical procedure, and results can be determined only after the lapse of considerable time.

Enough has been proved so that all can agree that in the larger number of cases of gall-bladder disease in which the treatment is surgical, the results are ideal; the patients are cured and pass quickly from a state of suffering and invalidism into a condition of health and comfort. There can, therefore, be no difference of opinion regarding the great benefits obtained in this comparatively new field.

But not all are cured. Some are not benefited, and occasionally one is found whose sufferings after operation are as bad or even worse than before. It is to a consideration of this comparatively small minority that attention is directed at this time.

The causes of non-relief, the conditions which the usual surgical methods do not cure, have been the object of much interest for a number of years. No important discovery has been made, but many little details are worthy of our earnest consideration.

For clearness, the factors interfering with complete postoperative relief may be divided into four classes:

I. Causes intrinsic to the gall-bladder and bile-ducts.
II. Causes extrinsic to the gall-bladder and bile-ducts.
III. Inadequate operative technic.
IV. Neglect of after-treatment.

I. CAUSES INTRINSIC TO THE GALL-BLADDER AND BILE-DUCTS

Under the first class are any and all pathologic conditions arising before operation which render a continuation of normal function impossible. These conditions are chiefly mechanical, and include all the factors that make for bile stagnation—everything that inhibits the free and normal flow of the bile from the liver and gall-bladder into the duodenum. All changes in the lumen and directness of the ducts which will hinder the free flow of the bile through the common duct, from the hepatic ducts through the cystic into the gall-bladder and from the gall-bladder through the cystic duct into the common duct, will naturally, according to the extent

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

of the interference of normal bile circulation, prevent complete and perfect convalescence.

These several factors consist of enough destruction of mucous membrane of the common, hepatic or cystic ducts to produce stricture of caliber small enough to retard the free passage of the bile. The duct walls are also sometimes so infiltrated that the muscular layer is replaced partially or wholly by fibrous tissue. Thus the normal elasticity is forever lost and I know of no process by which it can be restored. A duct thus deprived of its elasticity is still capable of acting as a channel through which the bile will flow when the pressure behind is sufficient, but it permits at best a stagnant stream and is a poor substitute for the elastic, muscular duct through which a peristaltic wave is supposed to pass three to four times a minute during the period the stomach contents are passing through the duodenum.

The gall-bladder also undergoes periodic contraction and helps to force the bile through into the duodenum. If its contractility is retarded or destroyed, another important aid to the active excretion of the bile is lost. A gall-bladder with a very thick infiltrated wall resulting from an intense or prolonged infection; or thinned and the muscular coat replaced by a fibrous coat; or if the gall-bladder is already much atrophied, having a capacity of only one or two drams, the peristaltic aid to quick and forcible propulsion of the bile into the duodenum will be lost. This loss is small compared with the results of bile remaining stagnant in the cavity of the gall-bladder, inviting infection and permitting an undue precipitation of bile-salts and the formation of gall-stones.

That myriads of microorganisms make their way from the intestinal lumen via the portal vein to the liver, thence through the bile-passages to the duodenum is an established fact.

When the bile is ejected freely these germs may pass and continue to pass through for a life-time and do no harm. But if the contractility of the gall-bladder is destroyed and the microorganism-containing bile lies stagnant in the gall-bladder for hours and days, reinfection of that gall-bladder is almost certain and, as a sequel, infection of the common duct and of the hepatic ducts. This establishes a vicious circle which spells disaster sooner or later.

II. CAUSES EXTRINSIC TO THE GALL-BLADDER AND BILE-DUCTS

Several conditions extrinsic to the gall-bladder are frequently encountered which must be overcome before normality can be reached. First among these extrinsic factors are pericystic adhesions, however produced. They may be the sequel of a previous cholecystitis which has been entirely recovered from. They may be the result of a former appendicitis. They may result from a duodenal or gastric ulcer which has almost or completely perforated, a general peritonitis having been prevented by the prompt formation of adhesions. They may be due to a general peritonitis from whatever cause. Sometimes the suspension of the gall-bladder to the anterior abdominal wall is the source of not only painful adhesions, but they may be so placed as to materially lessen the ability of the viscus to contract and expel the bile. The general effect of adhesions is to produce stagnation of bile in the gall-bladder. Its ability to contract and expel its contents is not only interfered with but the effort to contract is often very painful and may produce a variety of serious symptoms. Several times I have encountered adhesions between the gall-bladder and the duodenum or pylorus which have produced enough angulation to interfere seriously with the normal emptying of the stomach, and all the symptoms of pyloric obstruction were present.

Adhesions of the gall-bladder may also be so situated that the cystic duct is so bent or twisted that bile cannot flow through.

One case was encountered in Wise Memorial Hospital presenting all the characteristics of obstruction of the common duct. There were pain, vomiting, and repeated attacks of deep jaundice. Operation was undertaken under the mistaken diagnosis of stone in the common duct. No stone was found but the interesting condition was demonstrated of a right kidney, not prolapsed, but so twisted on its pedicle as to cause obstruction of the duct. The abdominal incision was closed and the kidney anchored. Complete relief of all the previous symptoms was obtained — relief which has now continued more than six years.

Prolapse of the liver may seriously interfere with normal bile excretion. The stagnation may be due in part to gravity and in part to angulation of the ducts.

III. INADEQUATE OPERATIVE TECHNIC

With all the variety of conditions which may be present it is not possible to lay down any hard and fast rules in operating. The man who essays to do gall-bladder surgery not only must be equipped with a good clean surgical technic but must have a quick and elastic surgical instinct. He will have to be endowed with a mind capable of coping not only with pathological but with mechanical problems.

The very nicety in which bile-drainage is normally carried on calls for a nicety and exactness in surgical technic not demanded in many of the other surgical areas. If he lacks in a clear comprehension of the entire problem, while relieving one painful condition he may substitute another as bad or worse.

Those who have had much experience in surgery of the gall-bladder will agree that this is not a mere fanciful whim, but a stern reality. Many patients have gone to a surgeon to be relieved of occasional attacks of biliary colic. After recovery from the operation they have found that instead of being occasional, the pain has become constant. A secondary operation is likely to reveal universal pericystic adhesions. A number of personal experiences of this kind have impressed me with the view that postoperative adhesions are to be greatly dreaded, and all efforts should be made to avoid them. The method so universally followed a few years ago of suspending the fundus of the gall-bladder to the abdominal wall was a fruitful cause of postoperative pain and discomfort. If the purse-string about the drainage tube is accurately applied ventro-suspension is never needed and I discarded it several years ago, with the effect of less pain during the convalescent period and a very much less number of cases incompletely cured.

All rough handling of the gall-bladder and the surrounding viscera is likely to produce postoperative adhesions. For this reason all the tissues encountered should be treated with the greatest consideration. The man who mauls and maltreats the tissues with which he deals will not only find his operative mortality large, but many patients unrelieved or only partially relieved. The greatest nicety in all intra-abdominal work is of the utmost importance if adhesions are to be avoided.

Drainage by means of tubes or gauze about the gall-bladder is decidedly inimical to postoperative comfort and should never be used if any means can be employed

to avoid it. A firm mass of adhesions always results from the free use of drainage. Fortunately the adhesions do not always do harm, but they are so frequently disastrous that every means to prevent them should be employed.

If adhesions are already present before operation the problem becomes more complex. But it is not usually insurmountable. In operating for painful adhesions one can always have the feeling that even if they form again they may be so situated as to do little harm. Much can often be done to prevent the reformation of dense adhesions by covering up the denuded area with normal peritoneum, at least where adhesions are most likely to cause pain or stagnation.

A gall-bladder which has been completely covered over with adhesions that have produced great suffering is frequently better removed. After having resorted to this procedure a number of times I have concluded that adhesions to the under surface of the liver where the gall-bladder was formerly located is much less serious than adhesions to the gall-bladder itself.

When operating for gall-stones no effort should be spared in searching and recovering every stone. The search should be very gentle but very thorough. Stones in the hepatic ducts and in the duodenal end of the common duct are most elusive, but careful search will usually be rewarded even in these localities.

A gall-bladder with a fibrous wall totally lacking in muscle fiber is a menace and if merely drained is prone to give so much future trouble that a second operation for its removal is often necessary. For this reason this type of viscus is better removed at the primary operation. I fully concur with those who look with alarm on the indiscriminate excision of gall-bladders. As long as there is a reasonable hope of its resuming its normal function there is every reason for retaining it. But a functionless gall-bladder is worse than no gall-bladder. By its production of stagnation it is a constant invitation for germs to do their worst.

For these reasons I would remove all gall-bladders whose mucous membranes have been destroyed as well as those whose cystic ducts are no longer patulous and cannot be made patulous. When the obstruction is evidently due to temporary inflammatory swelling as soon as the infection is relieved by the establishment of drainage the lumen is likely to regain its normal diameter.

When there is a general cholangitis, especially when the infection extends into the smaller hepatic ducts, the dangers are great and the necessity for exceptionally free drainage is of the utmost importance. Here duct drainage not only lowers the immediate mortality but aids greatly in bringing about a complete cure. I am convinced that there is a tendency in this class of cases to withdraw the tubes too soon. No harm can result from prolonged drainage, and a great risk is taken by stopping the drainage before the infection is relieved. When the infection is deep, if the drainage is kept up until the bile becomes sterile, the number of patients permanently relieved will be greatly increased. It may frequently be necessary to continue drainage several weeks, but that will be time well expended if it results in permanent recovery.

A paper with the limits of time allotted must of necessity be more suggestive than exhaustive. Great care in adapting the operation to the conditions found is of the utmost importance if we would increase the percentage of complete cures.

Careful operation in cases not complicated by fibrosis of the gall-bladder, wide destruction of the mucous membrane or distorting adhesions is almost universally followed by complete relief. This leads logically to the corollary that if in every diseased gall-bladder the patient could be operated on before the long array of secondary complications have occurred, disastrous postoperative sequelæ could be almost certainly avoided. Every painful attack adds to the total of the diseased conditions. Therefore the sooner a diseased gall-bladder that is not relieved promptly by non-surgical treatment is drained, so much the lower will be the operative mortality and the higher the percentage of complete cures

IV. NEGLECT OF AFTER-TREATMENT

The discharge of patients operated on for gall-bladder disease as soon as they have completely convalesced from the operation without further treatment, I look on as one of the most unfortunate customs that surgeons have fallen into. The operation is for the purpose of removing as far as possible the gross diseased conditions. By the few days' drainage the infection so frequently present is mitigated. The practice in continental Europe of undergoing a cure at Carlsbad is along the correct lines. Not all of our patients can take the Carlsbad cure, but by a thorough understanding between the surgeon and the family physician a very good imitation of it can be carried on at home.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STANTON AND DAVIS

DR. ROBERT T. MORRIS, New York: I will make but four points: 1. Closure of a sinus after gall-bladder removal. One case in which the gall-bladder and stone were removed had such adhesions that I could not make an opening into the common duct, and a sinus followed, with secretion of mucus from the remains of the cystic duct. It was a question if this could be closed by injection of bismuth paste while the active mucous glands were secreting. I asked the patient to go to Chicago and see Dr. Beck. He quoted a case in which a sinus with secreting kidney had been closed. In this case bismuth paste closed the sinus. That is worth recording.

2. Why is it that gall-stones do not often reform when we have removed them once? It is probable that gall-stones begin to be formed in some one toxic attack. I doubt if stagnation has very much to do with it. The theory on which we may assume that gall-stones begin to form in some one toxic attack is (1) that they are not often reformed; (2) all sorts of concretions are now believed to be due to colloid materials making combination with insoluble salts and cholesterin. This you may prove by taking a kidney-stone or gall-stone and putting it into a weak solution of sodium hypochlorite (antiformin) and in a short time it will become powder, because of the solution of the colloid material in the hypochlorite solution.

3. Dr. Stanton thinks cases of cholecystitis without stones have not shown better results than could probably have been obtained by medical treatment. That states a different point of view from mine. Some of my most successful surgery has been in cases of cobwebs in the attic of the abdomen—the toxic cobwebs which form with epithelium a desquamating plastic exudate. Adhesions form, engaging the pylorus, the gall-bladder, the hepatic flexure of the colon and the various structures in this region. These patients may give practically every symptom of gall-stone, but on operating we find no gall-stone. We have to explain the situation to the family, and it is sometimes a difficult matter to explain. Do not talk about gall-stones; make a diagnosis of cholecystitis, and if we find gall-stones incidentally, that is all velvet—but they are exceptional and we must go way back to this process which leaves the toxic insignia in the form of the cobwebs

in the attic before we can unravel and analyze our cases of symptoms referable to the gall-bladder.

4. Pancreatitis is one of the most common complications of infection in this region, and I do not mean the pancreatitis which gives such definite symptoms that it is readily diagnosed; I mean an interstitial pancreatitis found post mortem, if we look for it. We will find that it is an unsuspected cause for many of the distressing symptoms subsequent to operations on the gall-bladder.

DR. A. J. OCHSNER, Chicago: I believe that Dr. Stanton is on precisely the right track. In order to determine what to do for these patients we must first determine what happens after we have treated them according to the different methods. If we find that there is a certain class of cases in which a certain form of treatment gives satisfactory results then it is proper to call that form of treatment good and to continue it.

Concerning the unsatisfactory cases we must classify them as cases in which either there is something wrong about the diagnosis or about the treatment. Then we must continue until we either come to the conclusion that surgical treatment for these cases is bad, or we must continue to experiment until we find some operation that is good.

I believe that in this class of cases in which there was so large a percentage of unsatisfactory results, there must have been many in which the cholecystitis was simply one of a number of troubles. We have found, for instance, many patients suffering from the intestinal intoxication due to stasis caused by a Lane's kink, and in that particular portion of this classification we should have performed a short-circuiting operation to overcome this intestinal stasis.

There is another class of patients that I wish to speak of, which we formerly treated very badly. I refer to the patients suffering from acute biliary colic. In the early treatment of these patients we foolishly thought they were so terribly sick that they had to be relieved at once. We consequently operated on them immediately and increased our mortality far beyond what would be reasonable now. There is no sense in operating on patients who are suffering from a severe acute surgical condition which must of necessity be temporary. What our distinguished president told us yesterday in his address holds good. We must use better judgment in these cases. Why do these patients have a severe acute colic? It is simply because something is trying to pass from the stomach, past the papillæ, into the small intestine. You make it impossible for anything to pass by washing out the mucus or whatever is in the stomach by gastric lavage and not putting anything further into the stomach. Many patients in whom the pain could not be controlled by ½ grain., or 1 gr., or 2 gr., of morphin, will go to sleep and have no more pain. After a week or two the acute condition has subsided and the patient will recover with 1/10 of 1 per cent., instead of a relatively high mortality which we had when we did not have the wisdom to use this preliminary treatment.

What Dr. Morris has just told us about pancreatitis is of very great importance. I have had cases in which I found an obstruction due to pancreatitis which in itself caused the cholecystitis, and the passing of the products of the cholecystitis through the common duct caused an increased irritation and increased the pancreatitis, causing a vicious circle, and yet that class of patients recovered permanently with the cholecystotomy.

We should bear in mind the fact that practically all of the patients in whom there were severe gastric symptoms, due to the presence of gall-stones, recovered permanently. All of the symptoms of obstruction, the apparent pyloric obstruction which was not due to an obstruction at all of the pylorus, but to an obstruction in the duodenum, due to irritation caused by gall-stones, subsided; the apparent dilatation of the stomach and all other stomach symptoms subsided. It is not difficult to understand this when you simply look on the stomach, gall-bladder and duodenum as a coordinated machine, with this one point of interference.

DR. J. F. PERCY, Galesburg, Ill.: I regret very much that Dr. Deaver was not here with his paper this morning, because it brings up or discusses a subject that has already been suggested by Dr. Morris and that is chronic interstitial pancreatitis in its relation to diabetes, and I speak of this point here because I believe that it is germane to the subject. I do not believe that Dr. Deaver could prove from his paper that chronic interstitial pancreatitis involving the islands of Langerhans invariably, or even in a small percentage of cases, produces the symptom-complex diabetes. Yet there is something in this subject that has not been worked out, and one of the questions that is going to be acutely before us in the days to come is the working out of this subject. It is not an uncommon experience to find postmortem sclerosis in the islands of Langerhans, although during life there were absolutely no symptoms either of diabetes or even of ill-health; and so with reference to this part of the subject, so far as the infections from the gall-bladder are concerned, or from the duodenum, from ulcer of the stomach and from that great unworked field of infections from the colon, we do not know the etiology.

It is a curious and interesting thing that the spleen has none of the diseases that the pancreas has. The spleen practically has no inflammatory diseases, and the probable explanation of it is that the spleen has no ducts. The pancreas has ducts. The spleen has no neighbors, the pancreas has neighbors and very dangerous neighbors—the duodenum, the gall-bladder, the stomach and the colon. The spleen does not come, therefore, within the zone of these environmental dangers, and therefore we do not have the sclerotic changes that we see in the pancreas. All of us have had the experience that in opening the abdomen we find enlargement—when the pancreas is involved—of the head of the pancreas. It is a rare thing to find the body or the tail of the pancreas involved. Why this is I do not know. How much do the epidemic infections of the gall-bladder, occurring in childhood, have to do with these later changes in the gall-bladder or in the pancreas? These I throw out merely as mooted points. I am unfortunate in not being able to answer them.

DR. FRANK LEMOYNE HUPP, Wheeling, W. Va.: I wish to speak of gall-stones complicating complete left transposition of the liver. That patients with this anomalous condition of affairs are rare is shown by the literature. After a diligent research I found three cases in addition to my own; one reported by the lamented Dr. Carl Beck of New York (*Annals of Surg.*, xxix, 670), one by Dr. Billings of Chicago (*Phila. Med. Jour.*, Oct. 6, 1900), and one by Dr. W. J. Mayo, (Keen's "Surgery," iii, 970). It was my privilege to come across one of these rare and interesting cases within the last eighteen months. A woman, aged 33, with the usual history of bilious spells, pain and jaundice, was admitted to our city hospital, emaciated, jaundiced, four and one-half months pregnant and suffering almost constant pain in the epigastrium, occasionally radiating to the left. The precordial area and apex beat of heart were to the right of the usual situation. The hepatic area of dulness was decidedly diminished. The malposition of the liver was not suspected until the abdomen was opened with the usual right rectus incision, and a careful exploration failed utterly to reveal the offending gall-bladder. Bevan's incision was made, cutting entirely through the right rectus and with wide retraction to the left.

The anomalously placed organ was found completely transposed and filled with gall-stones. The stones were removed and drainage effected and the patient made a perfect recovery and gave birth to her child in due time.

DR. E. M. STANTON, Schenectady, N. Y.: One of my main thoughts in starting this work was to determine the type of cases which really needed cholecystectomy. Of course in classifying groups like these, there are innumerable ways in which it may be done. I grouped all of the so-called badly diseased gall-bladders and studied the cures with and without cholecystectomy, and I must admit that I was greatly surprised to find that, even in the case of thick-walled gall-bladders—the almost functionless gall-bladders, as we ordinarily consider them—the results were better in the cholecystotomies than in the cholecystectomies, provided only that there was no obstruction to the cystic duct at the time of operation.

In regard to cholecystitis without stones, we can only say that these cases necessarily include patients operated on a number of years ago, and therefore represent the pioneer days of cholecystitis surgery.

In some of these cases the results are brilliant; but in most of them the results are not satisfactory. The 46 to 50 per cent. of cures represents the final cures. There is no evidence that so large a percentage were cured by the operation. Some of the patients now reported as well recovered only a number of months or years after the operation. Very many patients who were apparently cured for the first six months or so (the time that the surgeon ordinarily keeps track of his patients) report a few years afterward that they are no better than before the operation.

Undoubtedly as we know more of the real pathology of cholecystitis we shall be able to improve the results. The type of cholecystitis described by Dr. Mayo as a strawberry gall-bladder, and the type spoken of by Mr. Moynihan in which the mucosa is covered by crystalline material, are apparently cured by cholecystectomy.

My studies have convinced me that we must be very careful in the treatment in these cases, even though we are sure that they are real cases of so-called cholecystitis, under our present-day concept of this lesion. Cholecystectomy alone does not give satisfactory results.

DR. B. B. DAVIS, Omaha: There is only one point I wish to speak of and that is the point brought out by Dr. Morris with respect to the frequency of chronic pancreatitis in these cases. I fully concur with him in his statement; and I believe that we should recognize and always examine carefully for this condition; and in all instances in which we find there is a good deal of induration of the pancreas—in other words, a chronic pancreatitis—we should drain a much longer time than we do in the ordinary, simple, uncomplicated case.

MERCURIC-CHLORID POISONING

ASSOCIATED WITH SECONDARY HEMORRHAGE FROM VAGINAL DOUCHE GIVEN SEVEN DAYS AFTER DELIVERY

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In the unfortunate case which I desire to report, on Thursday, Feb. 3, 1910, I ordered a mercury bichlorid vaginal douche, two quarts, strength 1 to 4,000. The patient, 34 years of age, delivered on January 27, had completed seven full days of her puerperium. This was her second confinement.

While the nurse was giving the douche, the patient suddenly experienced a sharp pain in the left side of the pelvis, and at the same time there was a hemorrhage so alarming that the nurse, having in mind nothing but danger from loss of blood, quickly prepared and gave a second douche the same as the first, as the best means of controlling the bleeding. The patient in the meantime felt frightened, faint, and chilly, and her pulse was just over 100. The nurse then telephoned to me.

On arriving at the house I examined the patient with a speculum, and finding a laceration of the left side of the cervix from which the bleeding had evidently occurred, I packed against the cervix with dressing forceps two small pledgets of gauze, wrung as dry as possible out of a bichlorid solution of the same strength as the douche. (If the gauze tampons contained a teaspoonful of the solution, this would have been about one-sixtieth grain of bichlorid. They probably contained less.) Up to that time and for twenty-four hours afterward, the accident seemed to be important only as a case of secondary hemorrhage from the lacerated cervix. Within six hours the pulse had fallen to 84. The tampons were removed the following morning, there was no further hemorrhage, and the patient was supposed to be doing well.

On the second day, however, a little sanguinolent mucus was passed from the rectum and mercurial poisoning was recognized. Still it seemed so mild that it was hoped it would pass off without further developments. Castor oil by mouth and high saline enemas, several quarts of continuous flow, were included in the treatment. But after three days, ptyalism developed, and on the fourth day vomiting and diminished secretion of urine with albuminuria and casts. During the fifth day there was almost total suppression of urine. But the volume of urine was quickly restored to almost normal within two or three days afterward, vomiting ceased, temperature remained normal, pulse was slow and of good quality, and our consulting physician, who saw her first on Tuesday, February 8, and daily (or almost daily) thereafter, at all times during the remainder of my attendance expressed the opinion that the patient would recover and that there would be nothing the matter with her kidneys. She would not die, because she had not absorbed enough of the poison to kill her.

The patient had a distressing stomatitis and was averse to taking food. In the middle of the second week after the accident she obstinately refused food, even all kinds of liquid nourishment. But she drank water freely, and we were assured that this difficulty would pass off before her strength would be seriously impaired. A brother of the patient, who is an eminent physiologist, concurred in this opinion. Three weeks from the date of confinement, and two weeks after the absorption of the poison, the patient was turned over to the family physician, by whom she had been referred to me. All her organs with the exception of the stomach were believed to be functionating in a satisfactory manner, and her recovery was supposedly assured. This prognosis was confidently expressed by all the physicians in attendance. Laboratory reports on the urine were equally reassuring. Unfortunately, however, a few days later she took a change for the worse and died of intercurrent bronchopneumonia and edema of the lungs on February 24, just three weeks from the date of poisoning, and four weeks after delivery.

I had recently seen a case of secondary hemorrhage after late repair of the cervix, the hemorrhage occurring spontaneously when no treatment was in progress, presumably from the separation of a small slough or the cutting out of a suture. Hirst refers to cases of this kind sometimes due to the dislodgment of a clot several days after delivery. In the present instance, however, it is more natural to assume that the douche in some manner caused the hemorrhage.

It is assumed that several elements contributed to the fatal result. The general health of the patient was not robust. Her strength was certainly impaired by the hemorrhage, which occurred during the giving of the first douche. And, although (in the light of later events), one might possibly have interpreted the pain and symptoms of shock at that time as being associated with the absorption of the mercury, they were originally, and probably correctly, ascribed to relaceration of the cervix and the loss of blood. Such a clinical picture may accompany almost any internal injury. The young men on my house staff at the New York Infant Asylum were strongly of the opinion that the poison was chiefly absorbed from the second douche, a certain amount of which would be rapidly taken up to restore the volume of blood depleted by the hemorrhage. (Curiously enough, the nurse afterward denied that the second douche, or the fluid used for the tampons, contained anything but hot sterile water.) There was no reason to believe that fluid was retained in the uterus or vagina or any pocket or cavity to be absorbed later. It was assumed by the consulting physician that there was an idiosyncrasy to mercury. The final result may have been determined by the patient's obstinate resistance to treatment and refusal to take nourishment. This obstinacy may have been entirely foreign to her natural disposition. The same intractability is particularly noted in the case of bichlorid poisoning from tablets inserted in the vagina, reported by Dr. B. Lankford.[1]

1. Lankford, B.: THE JOURNAL A. M. A., April 9, 1910, p. 1203.

Bichlorid vaginal douches are still very commonly employed by physicians and midwives, and accidents are exceedingly rare. A vaginal douche at the end of labor, 1 to 4,000 bichlorid, is recommended in the last edition of King's "Manual of Obstetrics" in the conduct of normal labor. Davis gives identical advice. Such douches, whatever harm they may have done, have doubtless accomplished a world of good in preventing sepsis where examinations have been made, and where infection may have been present and unsuspected.

Infection is still, undoubtedly, the greatest danger which threatens the obstetrical case. Statistics published in the Monthly Bulletin of the New York State Department of Health indicate that the deaths of fifty-two women were ascribed to puerperal septicemia in the state of New York alone in the month of March, 1911.

Williams frowns on the routine use of the vaginal douche as predisposing to morbidity and fever, and sounds warning against the danger of fatal bichlorid poisoning from even a single intra-uterine douche. Simple saline solutions and safer antiseptics are now being presented which may prove efficacious and harmless. Jewett, Edgar, and others recognize the need of great caution. My own practice was outlined in a paper published in the *New York Medical Journal* in 1905, under the title "Asepsis and Antisepsis in Midwifery." I had discontinued the use of the vaginal douche entirely, before, during, or after labor, except when urgently required, or as stated in my paper, during the second week after delivery, to promote involution and on account of the grateful sense of cleanliness afforded to the patient. In the more recent years, even this treatment had been omitted in most of my cases, as being unnecessary rather than harmful, being used only among the so-called better class of cases, in which a trained nurse was present to give it properly, exercising care to be sure that no fluid were retained. At the time of this case reported, I was attending a patient in her fourth confinement, all of which had been under my care, and for whom no douche had ever been ordered.

A review of obstetric teaching, as found in the latest editions of leading American text-books, and such as I have since made, would not have influenced my practice, apart from this unfortunate case. The case here reported, however, teaches that a combination of conditions is possible, under which poisoning may occur from a vaginal douche given a whole week after labor. This must certainly be a warning against the use of douches at any time, except when very definitely indicated. I can only regret that my previous knowledge and experience had permitted me to use them within the limitations here stated, without any misgivings as to the vaginal douche at a period so remote from delivery.

19 Fifth Avenue.

Weak Protoplasm.—C. B. Davenport (*Popular Science Monthly*) says that a heavy incidence of disease in any county does not always mean unfavorable environment. He has plotted the imbeciles received by an institution in a small state. The ratio of incidence of this condition to the entire population is high in some counties (chiefly rural) and low in others, due to the presence or absence of foci of the defect. Similarly the varying rate of deaf-mutism is determined by the density of defective germ plasm. So, also, despite its fine climate, the rising generation in California is characterized by diseases of the mucous membranes, because a generation ago much weak protoplasm was attracted to this state as a sanatorium. Blood, he says, is as important a factor in determining the occurrence of disease as climate.

GOITER AMONG THE INSANE

A STUDY BASED ON AN EXAMINATION OF 4,184 PATIENTS *

AXEL WERELIUS, M.D., AND C. G. RYDIN, M.D.
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INTRODUCTION

The conception of a disfunctionating thyroid being a causative factor in insanity is based on the highly interesting theory of internal secretion and that of auto-intoxication. As early as 1730, Haller mentions that Ruysch advanced the supposition that the "blood-vessel glands" manufactured some substance that was thrown into the blood-stream. The term "internal secretion" is said to have been used first by Claude Bernard.

No particular interest was manifested in this supposed glandular internal secretive process until Brown-Séquard,[1] in 1899, began experiments on himself with testicular extract. He finally concluded that all tissues gave an internal secretion, characteristic of its source. This idea, has, however, been discredited by the subsequent work of others, and it is now fairly well established that this process is in the main, characteristic of glandular organs, and not only of the ductless ones, but of the typical glands as well, as, for example, the pancreas, and probably also the kidney, liver, etc.

The important rôle played by perverted secretion of these special glands in psychoses has been specially emphasized by numerous authors. The condition created by such changed secretion, or a hyper- or hypo-elimination of the aforesaid organs, would then be in the nature of an intoxication, or rather auto-intoxication.

The prominence of intoxication in relation to disease was first brought to attention by Bouchard[2] in 1830, who gave a series of lectures on the subject. Rigo later emphasized its importance in mental disease. In 1884, Senator[3] spoke of a self-infection, originating from the digestive apparatus, as specially affecting the nervous system.

The notion of the internal secretion of the thyroid being an etiologic factor in insanity was conceived by noting the occurrence of mental phenomena in myxedema and Graves' disease. Thus it was assumed that mental change might be occasioned by a hypersecretion, a hyposecretion or a perverted secretion of this organ.

HYPERTHYROIDISM VERSUS PSYCHOSES

Antedating Basedow's description in 1840 of the symptom-complex that now bears his name, were the reports of a few earlier authors, who, it seems, described the condition and also mentioned that it may be associated with mental phenomena (Parry, 1825; Bruck, 1835). No doubt even the laity, observing the wildly staring eyes in typical cases of hyperthyroidism, considered the condition as one of deficient mentality.

As early as 1862 Bruck, and in 1866 Geiger, recorded cases of Graves' disease associated with symptoms of insanity. Graves, himself, noted the frequency of severe hysteria in this condition.

Trousseau early considered mental manifestations as cardinal symptoms of Graves' disease. In opposition to Trousseau, Raymond and Sérieux concluded that Basedow's disease had no etiologic significance in mental conditions.

* Read at the meeting of the Chicago Medical Society, March 22, 1911.

1. Brown-Séquard, C.: Repr. from Arch. de physiol. norm. et path., 1889, Series 5, II, 190.
2. Bouchard: Translated Lectures on Auto-Intoxication, F. A. Davis & Co., 1906.
3. Senator: Ztschr. f. klin. Med., 1884, p. 325.

Since Moebius,[4] in 1887, advanced his theory, there has been more unity among authors, most men considering mental symptoms in Basedow in the nature of an intoxication psychosis, probably of thyroid origin.

Paul Sainton,[5] in a splendid article reviewing the literature, separates the symptoms in two groups: one of maniacal agitation and the other a depressive type. Cases with mania are reported by Andrews, Robertson, Boeltger, Johnstone, Savage, Drummond, Hirschl, and many others. Melancholia, more or less severe, is described by Devay, Solbrig, Witkowsky, Noetel, Jensen, Gilmour, etc. Hallucinations occurred in cases of Meynert, Broecker, Jensen; ideas of persecution, in cases of Solbrig, Baumler, Benda, Ballet.

Gilmour[6] says the most common features are intense, indefinable agitation, inability to settle long on any occupation, chorea of ideas, insomnia, disagreeable dreams, changes from the most marked depression to joyous buoyancy, etc. Such mental diseases as chronic paranoia, dementia præcox, maniac depression or general paresis may be associated with Graves' disease. (Wiegert).[7]

Packard[8] analyzed eighty-two cases of Graves' disease presenting psychoses. Symptoms enumerated were, depression, fifty-three; exhilaration, twenty-three; excitement, fifty-one; irritation, thirty-three; apprehensiveness, thirty-seven; hallucinations, twenty-three; delusions, forty; incoherence, thirteen; delirium, eleven; memory defect, seven; paralysis, three; phobia, three; seizures, eight. It is significant that 63 per cent. of these patients showed hereditary tendency to mental disease.

From the above it seems that any symptoms of deficient mentality may appear in this condition. Still can it yet be said with reasonable surety that these phenomena are due entirely to increased thyroid activity? Have the various factors to be considered been carefully enough studied? Are not these symptoms only coincidental? What is the per cent. of Basedow cases showing mental symptoms? What per cent. of these cases give a mental family history? What per cent. exhibited mental symptoms previous to the onset of Graves' disease? What per cent. showed marked nervous taint, hence strong predisposition to mental disease? Could not any wasting disease, such as Graves' disease, bring out latent mental symptoms in a predisposed individual?

These, and probably many other questions, must be thoroughly answered before direct relationship can be established between exophthalmic goiter and insanity.

TABLE SHOWING OCCURRENCE OF GOITER OF DIFFERENT FORMS IN 4,184 INSANE PATIENTS.

Classification of Cases	Males				Females							
		No. of Patients	No. of Goiters	Percentage		No. of Patients	No. of Goiters	Percentage		No. of Patients	No. of Goiters	Percentage
Dementia præcox	...	1,549	124	8.0	...	766	22	2.87	...	773	102	14.5
Manic depressive	...	497	32	6.5	...	197	4	2.08	...	300	28	9.33
Anxiety psychoses or invol. melancholia	...	335	24	7.22	...	151	4	2.65	...	184	20	10.86
Depressions—												
Simple	(6)	...	..	.....	(3)	...	0	....	(3)	...	..	.....
Undifferentiated	(4)	...	2	13.33	...	...	..	....	(4)	...	2	18.18
Depressive hallucinosis	(5)	15	..	.....	(1)	4	..	....	(4)	11	..	.....
Paranoiac state	...	466	33	7.08	...	204	5	2.45	...	262	28	10.68
Infective exh. psych	...	33	6	18.1	...	9	0	....	...	24	6	25.0
Intoxication psychoses—												
Acute and chronic alcohol	(218)	...	4	1.7	(170) (8)	179	2	1.15	(48) ...	...	2	3.9
Korsakoff's disease	(10)	...	..	.....	...	...	..	....	(2)	...	..	.....
Morphinism	(2)	230	..	.....	(1)	...	..	....	(1)	51	..	.....
Psychoses associated with organic brain disease—												
Diffuse and focal lesions; traumatic arteriosclerosis	...	58	1	1.7	...	35	0	....	...	23	1	4.3
Huntington's chorea	...	3	..	.....	...	1	0	....	...	2	0	.....
Multiple sclerosis	...	2	1	50.0	...	...	..	....	...	2	1	.....
Cerebral syphilis	...	4	..	.....	...	3	0	....	...	1	0	.....
Senile dementia	...	210	11	5.24	...	78	1	1.26	...	132	10	7.5
General paralysis of the insane	...	311	6	1.9	...	223	1	0.45	...	88	5	5.7
Locomotor ataxia	...	1	..	.....	...	1	0	....	...	...	..	....
Epileptic insanity	...	234	12	5.1	...	144	3	2.08	...	90	9	10.0
Psychogenic neuroses—												
Hysteria	...	12	..	.....	...	...	..	....	...	12	0	.....
Neurasthenia	...	8	1	12.5	...	1	0	....	...	7	1	12.8
Psychasthenia	...	3	..	.....	...	1	0	....	...	2	0	.....
Hypochondriasis	...	2	..	.....	...	1	0	....	...	1	0	.....
Psychopathic personality	...	4	1	25.0	...	3	1	33.3	...	1	0	.....
Defective mental development	...	185	11	5.9	...	106	5	6.6	...	79	6	7.6
Unclassified	...	20	..	.....	...	18	0	....	...	2	0	.....
Puerperal insanity	...	12	1	8.3	...	...	..	....	...	12	1	8.3
	...	4,184	270	6.45	...	2,125	48	2.25	...	2,059	222	10.78

From the above it seems that goiter probably is more prevalent among insane than among sane people.

HYPOTHYROIDISM VERSUS PSYCHOSES

Artificial hypothyroidism by experimental excision of the thyroid was first attempted in the forties by Astley Cooper and Bardeleben with doubtful results. In 1856, Schiff, after numerous experiments on dogs, reported that all the animals died. Later, in 1882, Reverdin and Kocher reported the enormous disturbance created in man by complete thyroidectomy. By this total thyroid ablation the peculiar condition termed "cachexia thyreopriva" was produced and its close resemblance to myxedema noted.

These experiences in the human being and experiments on animals then established the condition of myxedema or hypothyroidism, or athyroidism on a sound etiologic and pathologic basis. The relation of myxedema, especially the congenital form, to insanity, is so clear that no argumentation is necessary.

Clinically, hypothyroidism is divided into myxedema of infants and adults. In the young, there is the congenital myxedema (cretinism) and infantile myxedema

4. v. Moebius, J. P.: Centralbl. f. Nervenh., Psychiat. u. gericht. Psychopathol., x, 225.
5. Sainton, Paul: L'Encephale, Jour. de psychiat., 1906, i, 242.
6. Gilmour, J. R.: Jour. Ment. Sc., London, 1909, p. 668.
7. Von Wiegert: Hygeia, Stockholm, 1909, 2 f., ix, 701.
8. Packard, F. H.: Am. Jour. Insanity, Baltimore, 1909-10, lxvi, 189

(endemic and sporatic myxedema); in the adult, the sporadic and the postoperative. In the congenital form, idiocy is an essential part. These individuals are always stupid, apathetic, not easily excited, of poor memory, indecisive, etc.

Sometimes they can be trained to perform certain household duties, and are then often spoken of as "beast-men." When less mentally developed, they are called "plant-men." In the sporadic cases, the mental condition varies greatly; as a rule there is moderate idiocy. Cases without idiocy have been reported (Grancher,[9] Comby[10] and Marfar,[11] 1897).

In the adult, the condition comes on spontaneously or postoperatively, and is characterized mentally by a greatly diminished cerebral activity, viz., impaired memory, fatigue from simplest intellectual operation, difficulty of fixing attention, apathy, hallucinations of sight and hearing, etc. In this brief description, there stands out prominently one significant factor, and that is that the earlier the onset, the greater the mental deficiency. This, it seems, would tell us that the disturbance is not due directly to the absence of thyroid secretion, but to enormous metabolic disturbances following its absence, as evidenced in the young by the incomplete or pernicious development of the entire system, mental manifestations here clearly being due to defective brain development.

In the old, this is not quite so clear, but the great metabolic phenomena surely also cause cellular brain changes, with consequent mental symptoms.

THYROID VERSUS DEMENTIA PRÆCOX

Berkley,[12] believing that he saw a symptomatic similarity between catatonic dementia præcox and hyperthyroidism, and reasoning along the line of the auto-intoxication theory (of insanity), concluded that catatonia might be due to a hyperthyroidism or a perverted secretion of the thyroid. According to such theorizing, hyperthyroidism, then, would manifest itself in two different conditions: on the one hand as a Basedow's disease, and on the other as a dementia præcox. On the face of it, that seems very improbable.

Berkley[12] states that on palpation the thyroid in these cases had a soft, mushy feel with an occasional hard knot, and that the gland as a rule was of normal size and sometimes smaller than normal.

This we were unable to verify in our cases. In fact, we must confess that we are unable to palpate a normal-sized gland. We examined several patients whose necks had a mushy feel, but these were not at all confined to the præcox cases, and we attributed this condition to a slight excess of subcuticular fat. In our experiences, both in the human being and the dog, we have often found quite an enlargement of the thyroid, although the gland was not palpable before operation.

If the condition would be caused by a disfunctionating thyroid, we might suspect some similarity in the pathologic picture, but in the cases in which operation was performed, almost all differed histologically. If we accept the condition of hyperplasia as a picture of increased activity of the thyroid, then hyperthyroidism probably could not be a factor in the production of catatonia, as most of the glands showed a fibroid or colloid change, consequently rather a lessened secretion. Thus only a perverted secretion (if such a condition exists at all) could be considered, and in view of the subsequent experiences of others, even this factor seems very unimportant.

Kanavel and Pollock[13] operated on twelve patients, and in reporting gave very conservative and guarded

WITH ANALYSIS OF TYPE OF INSANITY, TYPE OF GOITER, SEX, NATIVITY, AGE, ETC.

Situation of Goiter														Type of Goiter				
Female					Male				Both Sexes									
Right	Left	Bilateral	Middle	Exoph.	Right	Left	Bilateral	Middle	Right	Left	Bilateral	Middle	Exoph.	Simple	Fibroid	Cystic	Exoph.	Age Limit
51	8	61	4	..	6	2	14	..	47	6	47	4	..	118	6	..	..	17–79
9	4	17	2	..	1	..	3	..	8	4	14	2	..	28	4	..	..	27–74
13	2	7	..	..	3	..	1	..	10	2	6	..	..	20	3	1	..	32–62
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
1	..	..	..	1	..	..	..	..	..	..	..	..	1	1	..	..	1	33–38
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
3	7	19	4	..	1	1	2	1	2	6	17	3	..	29	2	2	..	30–68
4	..	2	..	..	..	..	..	..	4	..	2	..	..	55	1	..	..	33–56
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2	..	2	..	..	1	..	1	..	1	..	1	..	..	3	..	1	..	42–55
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1	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	47
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4	2	5	..	..	1	..	..	..	3	2	5	..	..	8	3	..	..	57–83
3	..	3	..	..	1	..	..	..	2	..	3	..	..	6	..	..	..	34–66
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4	..	7	..	1	..	..	3	..	4	..	4	..	1	11	..	..	1	14–37
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5	1	5	..	..	2	1	2	..	3	..	3	..	..	10	..	1	..	20–51
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1	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	45
101	24	131	12	2	16	4	27	1	85	20	104	11	2	294	19	5	2	

9. Grancher: (1897) Centralbl. f. Nervenh., 1887, x, 225.
10. Comby: Traité des Maladies de l'enfance de Grancher, iii, 910.
11. Marfar: Jour. de Méd. int., 1900, No. 3, p. 596.
12 Berkley: Am. Jour. Insanity, January, 1909.

13. Kanavel: Am. Jour. Insanity, January, 1910, xcvi, 437.

conclusions. They thought at first that the acute cases were somewhat benefited, but subsequent events have shown that this was erroneous. Kanavel[13] tells us that as far as he is able to judge, there is absolutely no justification for thyroid surgery in this condition.

Winslow briefly reports five cases in which operation was done, with rather discouraging results; still he believes there is some connection between the thyroid and the condition in question.

Norbury, who has had an enormous experience among the insane, and who is also a keen observer, fails to see any resemblance between Graves' disease and catatonia, and strongly doubts that the thyroid is the offending member in the last named condition.

SUMMARY OF WORK

The object of this research was to ascertain the percentage of goiter among the insane and the proportional presence of struma among the various forms of insanity.

For this purpose we examined 4,184 insane patients, 2,000 at Kankakee and the rest at Dunning. In palpating the necks of these patients we aimed to be as thorough as possible. Whenever we were in doubt as to the presence of an enlarged thyroid, we consulted between ourselves and with others, and if still in the least doubt the case was discarded. In this way, undoubtedly, some enlarged glands escaped us, but the cases enumerated as goitrous were unmistakably such.

In diagnosing the type of gland we have called a soft gland, simple goiter; a firm hard one, a fibroid, and a distinctly fluctuating one a cystic goiter. Here again, of course, several errors may have been committed.

Among the 4,184 cases there were 270 distinctly palpable thyroids (goiters), 6.45 per cent.

There were 2,125 males with forty-eight goiters, 2.25 per cent.; and 2,059 females with 222 tumors, 10.78 per cent. The relation of goiter between males and females was then about one to four or five. In these goiters the right gland was enlarged 101 times, and the left twenty-four, thus making the relative proportion one to five.

There were 131 bilateral enlarged glands, and in these almost invariably the right gland was the larger.

The middle lobe was enlarged in twelve cases.

There were 244 simple, twenty fibroid and four cystic goiters. Only two cases of typical exophthalmic goiters were found in this series.

Undoubtedly some cases of Basedow's disease, in which the symptoms were not very pronounced, escaped our attention, but it seems that in the territory tributary to Kankakee and Dunning such patients do not often manifest mental symptoms prominent enough for confinement in an asylum.

Leaving out a few types of insanity comprising a small number of cases, dementia præcox presented the greatest percentage of goiters and also the greatest number of insane. As the catatonic form of dementia præcox had been considered due to thyroid disturbance, we expected to find the greatest number of goiters in this type; but we found that the hebephrenic form had 93 per cent. of the goiters.

Next to dementia præcox came involution melancholia and then the paranoic state.

By far most of the goiters, 133, almost 50 per cent., were present in native born; Germans thirty-six, Irish seventeen, Swedish thirteen.

Further summary of the work is given in the accompanying table.

TETANY IN ADULTS

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SAN FRANCISCO

The first definite description of the peculiar group of symptoms to which Lucian Corvisart afterward gave the name "tetany" was by a German, Steinheim, in 1830. A year later Dance, a Frenchman, published several cases under the name of "intermittent tetanus" and during the next thirty years the French school was most active in recording clinical features of the affection, the classical papers of Trousseau being the most notable of this period. After 1870 the scene of activity was shifted to the other side of the Rhine, probably because the disease appeared less frequently in France and became more common in Germany. The most important communications of the next decade were those of Kussmaul, Riegel, Erb and Chvostek, senior, while the description of the relation of tetany to total thyroidectomy in 1880 by Nathan Weiss, writing from Billroth's clinic, and the many papers which followed slowly the discovery of the parathyroids by Sandstroem in the same year, gave new impetus to the study of etiologic factors. The endemic occurrence of the disease in Vienna afforded particularly favorable opportunity for investigation which has borne fruit in the excellent reports of Frankl-Hochwart, Chvostek junior, Escherich, Pineles, Erdheim, Schlesinger, Biedl and others. The important work of W. G. MacCallum, Halsted, Beebe and Berkeley in this country is well known. The monograph of Frankl-Hochwart (1907), or the more recent works of Ochsner and Thompson ("Thyroid and Parathyroid Glands"), or of Biedl ("Innere Sekretion"), contain extensive bibliographies.

In tetany the characteristic feature is the occurrence of intermittent tonic, usually symmetrical spasms affecting most often the extremities, particularly the arms, and rarely leading to any disturbance of consciousness. In the milder forms the arms alone may be affected and the hands brought into the peculiar position, with fingers extended and approximated, the thumb extended and adducted—*la main d'accoucheur* of Trousseau. The position of the fingers can be imitated by electrical irritation of the ulnar nerve. These illustrations and the sketch by Dr. Sterling Bunnell of a patient of mine during a seizure show the typical tetany hand. In severe types spasm may involve not only the extremities, but the face, jaw, larynx, abdomen, diaphragm and even the eyes. The seizures may last a few moments or, rarely, for hours or days. Nearly always sensory phenomena accompany or precede the motor. Extensive and prolonged spasm occasions intense suffering. Numbness, tingling, prickling and coldness of the surface; heaviness, aching, soreness, tenderness and stiffness of the muscles are the sensations most frequently described. In chronic cases secretory and trophic changes may occur—sweating, edema, pains and swelling in joints, loss of hair and nails. Isolated myotonic phenomena may be manifested and myotonia congenita (Thomsen's disease) simulated. Following or occasionally replacing the spasmodic seizures flaccid or spastic weakness of the lower extremities has been noted. Clouding and loss of consciousness are not infrequent in tetany of gastric origin. Psychoses have been described by Frankl-Hochwart. The relations of tetany and epilepsy are important and will occupy us later.

THE TESTS FOR MILD TETANY

From the study of mild cases during epidemics and of chronic cases following lesions of the parathyroids, or

due to stomach disease, it is evident that, in addition to typical tetany with characteristic spasms, a number of latent, atypical or *fruste* forms exist that are only to be unmasked with aid of certain tests. These tests or signs depend on the increased irritability of sensory and motor nerves to mechanical and electrical stimulation. A knowledge of them is essential in diagnosis.

1. *The Trousseau Phenomenon.* — Trousseau found that by compressing the arm or leg of a patient with tetany, the characteristic spasms could be brought about at will. The phenomenon is best elicited by grasping the upper arm firmly, the thumb externally, the four fingers compressing the brachial plexus strongly against the humerus. Gradually, in positive cases, after an interval varying from a few seconds to four or five minutes, the forearm stiffens, the wrist is flexed and the fingers straightened and adducted. This sign is almost pathognomonic; the muscular contractions following pressure in hysterical individuals occur suddenly and do not bring the hand into the typical position. It depends, as Frankl-Hochwart has demonstrated from animal experiments, on mechanical irritation of the nerves and not of the blood-vessels, as was first supposed. It is a reflex phenomenon and may rarely be occasioned by irritation of more distant nerves.

I have examined several hundred patients for the Trousseau sign and have never found it apart from tetany. In January this year a man entered the University Hospital complaining of paresthesias and occasional severe pain in the extremities, with aching in the muscles, tenderness and intermittent cramps. The character of the muscular spasms and the presence of typical Trousseau and Hoffman phenomena determined the diagnosis of tetany.

2. *The Erb Phenomenon.*—This is perhaps the most characteristic of all tetany signs when present. The irritability of the motor nerves is greatly increased to the galvanic current, much less constantly to the faradic. Very weak currents cause tetanic contractions—even anodal opening or closing tetanus can be frequently demonstrated.

3. *The Chvostek Phenomenon.*—This depends on increased mechanical irritability of the nerves and is most readily demonstrated in the facial distribution. Frankl-Hochwart describes three degrees of irritability; in the highest grade (Chvostek No. 1) a tap on the facial nerve in front of the ear causes twitching in all the muscles supplied by it. In Chvostek No. 3 twitching of the muscles at the corner of the mouth alone occurs. Chvostek, junior, has recently emphasized the importance of this sign, first described by his father. Frankl-Hochwart, Schlesinger and others, without denying its value, have insisted on the fairly frequent occurrence in other conditions, especially neurasthenia, hysteria, tuberculosis.

4. *The Hoffmann Phenomenon.*—This is of much less significance in diagnosis. There is increased irritability of the sensory nerves to both galvanism and faradism and slight currents may cause tingling or pain. Chvostek, junior, has shown that the nerves of special sense may be in a similar state of hyperexcitability. The leg phenomenon recently described by Schlesinger and the methods of producing spasms of the hand by forcible abduction of the arms, thus stretching the brachial plexus, or evoking spasm in the feet by stretching the sciatic nerve by forcible flexion of the trunk on the thighs, are merely modifications of the Trousseau procedure. In a case seen recently the Chvostek and Erb phenomena were most marked, but the Trousseau sign could not be demonstrated. Extension of the leg on the thigh and forcible flexion of the thigh on the trunk caused spasmodic extension of the foot in equinovarus position—the Schlesinger leg phenomenon.

The above phenomena and the peculiar muscular contractions are identical in all forms of tetany. Following Frankl-Hochwart, it is usual to distinguish seven groups of varied etiology or associations.

THE FORMS OF TETANY

1. Idiopathic, professional or endemic tetany is seen most frequently in Vienna and Heidelberg, occurs most often in young men—particularly in shoemakers and tailors. I saw a number of cases in the clinics of Frankl-Hochwart and Chvostek in 1895 and 1896, but have failed to find any typical ones in California. As goiter is frequent with us the observation of Chvostek is interesting, that tetany rarely occurs in regions where goiter is endemic.

2. Tetany of gastro-intestinal origin is seen most frequently in connection with pyloric stenosis, but has been described with varied diseases of the intestines, gall-bladder, appendix and pancreas, after long-continued diarrhea, or associated with intestinal parasites.

3. The tetany of acute infectious diseases—typhoid most commonly—cholera, influenza, measles, scarlatina.

4. Tetany after poisoning by chloroform, morphin, ergot, filix mas, cocain, novocain, lead, phosphorus; organic intoxication as in nephritis. The experiments of Rudinger have important significance in this connection. Poisons such as atropin, morphin, tuberculin, mercurial salts and ether were injected into cats with no appreciable effect on their nervous system. When, however, the outer parathyroids were removed, after such injections, tetany developed in certain animals and increased electrical excitability of nerves in others.

5. The tetany of pregnancy, the puerperal period and lactation. MacCallum believes that the drain of calcium in lactation or for formation of the fetus in pregnancy may alone in certain cases be sufficient to cause tetany. If parathyroid insufficiency already exists tetany is all the more certain to occur. It has long been known clinically that women with chronic tetany (idiopathic thyreopriva) were subject to exacerbations during pregnancy and lactation. Vassale and Generali early in their important work on the physiology of the parathyroids (1896) noted that animals with partial parathyroidectomy, showing few if any symptoms of tetany, developed severe manifestations of the disease in pregnancy and the puerperium. The experiments of Erdheim, Pineles, Thaler and Adler have served to confirm and elaborate their observations. Vassale would refer considerable importance to parathyroid insufficiency in the production of eclampsia, and Zanfrognini is inclined to think he has seen good results follow administration of an extract derived from beef parathyroids.

6. Tetany following extirpation of the thyroid or, as we know now, of the parathyroids.

7. Tetany in association with other nervous diseases—brain tumors, syringomyelia.

In recent years the essential identity of symptomatology in the tetany of these different groups has sought explanation in a possible common cause—the insufficiency of the parathyroid glands. In 1880 the Swedish anatomist, Sanstroem, described certain small glands constantly to be found in the neighborhood of the thyroid and distinctly different from accessory thyroids; these he names parathyroid glands. This anatomic fact was confirmed by other observers, but was first vitalized by

the brilliant experiments of Gley, who found that tetany following operations on the thyroid was due to loss of the parathyroids and not the thyroid. Vassale and Generali removed the parathyroids alone and left the thyroid uniformly producing tetany. From the work of these authors, of Jeandelize, MacCallum, Erdheim, Pineles, Biedl and a host of others it has been firmly established that tetany follows extirpation of the parathyroids in all animals. Tetany in man after thyroidectomy is no longer, therefore, attributed to loss of thyroid function, but to removal or injury of the parathyroids. Simple thyroidectomy leads to myxedema alone.

The etiologic unity of all forms of tetany on a basis of parathyroid insufficiency, first suggested by Jeandelize in 1902, has received the support of such investigators as Chvostek, Pineles and Escherich. Pineles has pointed out that not only are the common symptoms identical in the various groups, but that rarer ones, such as cataract, loss of hair and nails, epileptiform attacks observe the same rule. Frankl-Hochwart has shown that tetany of all varieties is subject to the same seasonal fluctuations; most cases occur in March and April, the flood tide being in March. Very few cases are met with in summer or fall. The fact that chorea is most common in the spring months is of interest in this connection. There is yet no satisfactory pathologic evidence that the various forms of tetany depend on parathyroid lesions. In Escherich's clinic Yanasse found hemorrhagic changes in the glands in thirty-three out of eighty-nine children who had presented tetanoid symptoms. MacCallum and Koenigstein reported proliferative cell-changes suggesting hyperfunction in cases of gastric tetany. Erdheim found the parathyroids perfectly normal in two cases and Opie could find nothing abnormal in a case reported by Kinnicutt. Chvostek has assumed circulatory disturbances with disturbed function as the cause of symptoms even without morphologic changes in the glands.

Although it seems to me premature to adopt the theory of parathyroid insufficiency as the cause of all the clinical conditions to which the name tetany has been given, the vital importance of the glands cannot too strongly be impressed on the mind of the clinician and the surgeon. The anatomic relations of the glands are best shown in these plates from Halsted and Evans and Ochsner and Thompson. "With great regularity these little epithelial bodies are situated on or very near the posterior border of the lateral lobe of the thyroid gland and more or less in line with an important landmark, the 'channel' of anastomosis between the superior and inferior thyroid arteries" (Halsted). The dangers in thyroid operations are chiefly from crushing or from interference with the blood-supply and the safest procedure would seem to be the "subcapsular" operation of C. H. Mayo, with very careful ligature of vessels as near the gland as possible.

Injury of the parathyroids at operation is not necessarily followed by fully developed tetany. In animals with apparent complete parathyroidectomy a peculiar slow cachexia has been observed. In partial thyroidectomy chronic nutritional and trophic disorders such as loss of hair, emaciation, changes in the teeth have been described. Halsted has given a graphic account of postoperative symptoms following thyroidectomy due to insufficiency of the parathyroids. Peculiar nervous states —anxiety, waves of numbness and paresthesias, prostration, depression, coldness of the skin, slight hard edema of the legs, arthritic pains, loss of weight—were noted during a long period of observation. Alarming symptoms of the earlier days after operation were relieved by large doses of dried parathyroid glands and the later condition of invalidism with its manifold distressing symptoms was almost entirely cured by subcutaneous administration of the parathyroid nucleoproteid prepared by Beebe. Halsted has proposed the names hypoparathyreosis or status parathyreoprivus for the condition. The readiness with which such states could be mistaken for hysteria or neurasthenia is obvious. As will be noted later they occur apart from operative injury to the parathyroids. They are the cases of "latent tetany," chronic tetany or tetanoid conditions described by Frankl-Hochwart, Chvostek, Schlesinger and others.

Lundborg has written most entertainingly of the relations of tetany to other spasmodic affections such as myotonia congenita (Thomsen's disease), myoclonia and paralysis agitans, and has referred them all to parathyroid insufficiency or hypoparathyroidism. On the other hand, he would regard myasthenia gravis and periodic myotonia as affections due to hyperparathyroidism—or dysparathyroidism. Chvostek has recently adopted this view of myasthenia gravis and Berkeley and Camp have seconded the hypothesis of Lundborg concerning paralysis agitans. R. L. Thompson, who compared the parathyroids from nine cases of Parkinson's disease with those of thirty-nine cases of individuals who died of other diseases, failed to substantiate such theory; he writes: "The parathyroid glands in individuals dying with this disease (paralysis agitans) present no change either in number, size, position, or histologic structure that would serve to distinguish them from the parathyroid glands in individuals dying from other diseases."

The exact manner in which parathyroid removal or disease gives rise to tetany is not yet determined. The present state of our knowledge is excellently reviewed in the recent article by Beebe in Hare's "Modern Treatment," from which the following quotation is taken:

"We may summarize the present ideas in regard to this matter by stating that one set of investigators maintain that a deranged calcium metabolism is the origin of the disturbance, while others believe that it is an essential damage to the nitrogenous metabolism. McCallum and Voegtlin find that parathyroidectomy is followed by an actively increased excretion of calcium, amounting to a calcium diabetes. The evidence in favor of what may be called the calcium deficiency theory may be summarized as follows:

1. There is a low retention of calcium during the eclamptic period of gastric tetany, a condition probably similar to that of tetany parathyreoprivus (Cybulski, Pineles).

2. Surgical removal of the parathyroid gland is followed by an increased excretion of calcium, and the brain of an animal dead of tetany contains less calcium than is found in the brain of a normal animal (McCallum and Voegtlin).

3. Intravenous administration of a soluble calcium salt promptly relieves the symptoms of tetany parathyreoprivus.

4. The inactivation of the circulating calcium by means of intravenous injections of trisodic citrate is accompanied by muscular twitching and convulsions identical in character with those of tetany, and these may be relieved by the injection of soluble salts in sufficient quantity to restore the equilibrium (Sabbatini).

The evidence in favor of the symptoms having their origin in a metabolic toxin may be summarized as follows:

I. The symptoms have a central origin.

II. Symptoms are shown best in young animals, and are more severe if the animal has been kept on a meat diet.

III. The symptoms have close relation to certain clinical conditions which are accompanied by severe nutritional disturbances.

IV. Gastric tetany is accompanied by severe metabolic disturbance, it has similar symptoms, and is promptly relieved

by intravenous calcium injections and by parathyroid nucleoproteid.

V. Bleeding, followed by intravenous infusion, relieves the animal, a procedure well suited to free the body from a circulating poison.

VI. Symptoms are promptly relieved by the injection of fresh parathyroid nucleoproteid.

VII. Injection of known simple poisons, such as ammonia and xanthin, produce symptoms which can be promptly relieved by the injection of calcium or strontium salts, similar to the relief obtained by the same means in tetany.

VIII. Parathyroid tetany has a deranged metabolism, accompanied by a large increase in the excretion of ammonia.

It is certain that the symptoms are caused by removal of the parathyroids and that they may be relieved by the administration of parathyroid proteid. For therapeutic purpose, the most effective method of administering the gland extract is hypodermic injection.

CLINICAL REPORTS

CASE 1.—In February, 1906, a man aged 50 was seen in St. Luke's Hospital with severe gastric symptoms. There was a definite history of ulcer some ten or twelve years previously, with a period of comparative health following, and of vomiting attacks during the last two years. During the last six months the man had been in hospital several times with typical symptoms and signs of a greatly dilated stomach. Three or four quarts of material would be vomited at different times. Examination of the content showed free hydrochloric acid and sarcinæ. There was most marked gastric peristalsis. Operation was obstinately refused and therapy was limited to diet and lavage. Two weeks before the final examination the phenomena of tetany were looked for but not found. After leaving the hospital, the patient had several severe vomiting spells, and on the day previous to being seen, had a convulsive seizure which lasted some hours, and was succeeded by stupor. When seen there were typical spasms of hands and feet with involvement at times of the abdominal muscles and of the mouth and eyes. There was low delirium and no complaint of paresthesias or pain. The Chvostek and Trousseau phenomena were readily demonstrated. The seizures lasted a few minutes only and were repeated several times during the day. No vomiting occurred. The patient was given salt under the skin, thyroid extract by mouth and rectum, and bromid and chloral enemata. Stupor gradually deepened and death occurred forty-eight hours after the first seizure.

CASE 2.—In April, 1907, a woman of 40 was seen in consultation because of attacks of vomiting severer than any of those to which she had been long accustomed. There was a history of indigestion dating back fifteen years. From the occurrence of severe pain in previous attacks and of blood vomiting, there was no doubt of a chronic ulcer as the chief cause of the condition. For three years she was known to have had pyloric stenosis and a dilated stomach. With careful dieting and stomach washing she had been fairly comfortable, but in the last month, had been losing weight and strength. The amount of material vomited was far in excess of what she had taken—as much as six quarts were collected in twelve hours. Previous examinations had shown hyperchlorhydria and constant presence of sarcinæ. In the past two weeks she had grown extremely nervous, had slept badly, had grown weak, and twice, after having the stomach washed and emptied of several quarts of stagnating content, had suddenly lost her sight, complained of general numbness and had lost consciousness. On examination stomach-splashing was elicited just above the pubes, the stomach outline was plainly apparent and waves of peristalsis rolled across the hypogastrium. There was a peculiar anxious, rigid facies that suggested examination for the phenomena of tetany. A history was elicited of painful cramps in the left leg and arm during the past month, and of numbness and tingling of the hands apart from the vomiting attacks. The Chvostek, Trousseau and Hoffmann signs were most marked and contraction of the abdominal muscles could be occasioned by percussing the epigastrium. There were no signs of organic nervous disease. The eye-grounds were normal. The thyroid was moderately enlarged. Operation was strongly urged, but was refused. The patient fell into the hands of a quack and died two months later.

CASE 3.—A woman aged 31 was first seen April 5, 1905. She had facial erysipelas as a child and always had considerable nose and throat trouble. This, by the way, has an important bearing on thyroid disease. For five or six years vomiting had been frequent. The least nervousness would bring it on. Sometimes there was nausea but most often not. Two years previous there had been severe recurring cramps in the right hand and arm and she had to stop work as a bookkeeper on account of this and extreme nervousness. The past year there had been palpitation, trembling and sweating.

In 1901 curettage was done for painful and irregular menstruation, with relief for six months. In October, 1904, the patient was curetted again and this was followed by infection, with considerable pain about the appendix and up along the colon. Her first examination suggested a *fruste* form of exophthalmic goiter. There was a moderate goiter, marked tremor of eyelids, tongue and hands, Moebius' sign positive, pulse 90 to 100. One sister had a moderately enlarged thyroid.

After long observation it became apparent that she had a dilated ascending colon and cecum, due presumably to adhesions of the hepatic flexure, of gall-bladder or stomach origin, or possibly a result of infection following curettage. Under bromids and rest the thyroid symptoms disappeared. There was ptosis of the stomach with atony, ptosis of the colon, but very little displacement of the kidneys.

In August, 1906, Dr. W. I. Terry made an exploratory incision and found extensive adhesions about the hepatic flexure, with an acute kinking of the colon. There were some adhesions of the colon to the duodenum, but no gastric or duodenal ulcer was demonstrable. The adhesions were freed and nothing further done. Recovery was made eventful by persistent cramps in the thigh and calf muscles. No signs of tetany were elicited. The patient did not do well, and in October, 1907, signs of more serious stomach trouble became apparent. The stomach became dilated, the lesser curvature being 2 cm. above the umbilicus, and the greater curvature reaching into 2 or 3 cm. above the pubes. There was no visible peristalsis, but vomiting was more frequent and stomach tests showed stagnation. Free hydrochloric acid varied from 27 to 35, and total acidity from 47 to 65.

Under regular lavage, improvement took place for a time, but operation was demanded later by the continued vomiting, pain and malnutrition. Dr. Terry operated in February, 1908. There were dense adhesions about the hepatic flexure and pylorus, the stomach was greatly dilated and prolapsed, the transverse colon was long and hypertrophied. Adhesions were loosened and a posterior gastro-enterostomy done. Owing to encasing of the pylorus in adhesions a Finney operation was not deemed possible.

During the days following operation there was much vomiting, often of large amounts of greenish fluid. On the 17th another of these attacks occurred and stomach peristalsis was seen. Sudden loss of vision for a few minutes occurred next day. There was much complaint of general pain and aching in the muscles. On the 19th there was vomiting of 900 c.c. at one time and this was followed by an attack of faintness, numbness and tingling in the extremities. A stomach-tube, which was well borne up to this time, now caused great distress and a feeling of constriction in the throat, and its use was discontinued. On the 21st Chvostek and Trousseau phenomena were quite marked and there was a spontaneous spasm involving the hands, arms and feet. During the next three days these typical paroxysms of tetany were repeated several times a day. They seemed to follow vigorous peristalsis of the dilated stomach, which caused intense abdominal pain, or they were brought on by excitement or other emotion. In several seizures there was great distress in the chest, a feeling of constriction in the neck and throat, and rigidity of the muscles of the face. The vomiting continued and the patient was given large amounts of water in order to wash the stomach out without the use of the tube; food was discontinued by stomach and enemata of salt solution were given every four or six hours. As the attacks continued, treatment with parathyroid

extract was begun, at first dried powder and later by hypodermics of an aqueous solution of the nucleoproteid from beef parathyroids. These extracts were prepared by the method kindly given me by Dr. McCallum. The use of the parathyroids seemed both to Dr. Terry and myself to have a distinct influence in controlling the attacks. After February 26 there were no spontaneous spasms, although there would be occasional complaint of paresthesias in the hands. Chvostek and Trousseau phenomena could be elicited on almost every examination.

It became apparent that the patient could not be kept alive under existing conditions and on March 1 an enterostomy was done by Dr. Terry in order to shunt out the stomach and permit of sufficient feeding. Consequent on the patient's removal to the hospital and the preparation for operation, spasms of the arms and feet returned. The spasms were much more marked in the left arm, as had been noticed a number of times previously. Operation was done under ether and it was interesting to note that during the operation, although reflexes were everywhere abolished, the rigidity of the hands persisted. Throughout the operation also, there was a rhythmic tremor in the interossei muscles identical with the tremor of Parkinson. There were four to six oscillations to the second and the movements of the fingers, when coming out from ether after the spasm had relaxed, were the same as in paralysis agitans. At the end of the anesthesia, the electric irritability of the hand muscles was tested both to faradism and to galvanism and found to be greatly increased. Unlike what is usually noted, there seemed to be the same increase of irritability to faradism as to galvanism.

As a precautionary measure, two or three doses of parathyroid extract were given subcutaneously and for a few days three hashed-up beef parathyroid glands were given through the enterostomy tube. For three or four days the patient did well, but after that vomiting occurred, there was great complaint of abdominal pain and it became apparent that there was regurgitation from the jejunum into the stomach. Despite the vomiting, considerable food passed into the bowel and marked attacks of tetany did not recur. There was still complaint of paresthesias and the Chvostek phenomenon could at times be obtained. The patient's general condition for a long time was miserable. She was unable to see well, but an examination of the eyes by Dr. Alexander failed to show cataract or fundus changes. Gradual improvement took place during April and May and the patient was able to go to the country. Death from drowning occurred the same summer through an unfortunate automobile accident.

It is interesting that the attacks of tetany came only after gastroenterostomy. Signs of it were looked for but never found until some days after the first operation. It is noteworthy in the history that severe cramps occurred after the first operation and that the patient had for years been subject to muscle cramps in different areas. The spasms seemed to be excited by violent peristaltic contraction of the stomach or by emotional disturbances. They did not seem to have any particular reference to the amount or character of the vomitus. After operation, although the vomiting continued, peristalsis of the stomach almost wholly ceased, and with this cessation the attacks of tetany disappeared. The toxic theory of gastric tetany would harly seem to be borne out by our observations.

Case 4.—In December, 1909, a man of 48 was seen on account of stomach symptoms dating back seven years. For three years distress, vomiting, pain and occasional blood vomiting had been the chief symptoms. Then he began to vomit large amounts occasionally and to notice residue from meals eaten days before. Since beginning the regular use of the stomach tube there had been comparative freedom from vomiting and serious attacks until the spring of 1909. He then grew very weak and nervous, was troubled greatly by numbness and twitching in the extremities, with spasmodic seizures involving the hands, feet and calf muscles. Two days before being seen he vomited and subsequently had numbness of the extremities and cramping of the hands and feet. Examination Dec. 10, 1909, showed a tremendously dilated stomach with peristaltic stiffening on tapping the epigastrium, and 1,000 c.c. were evacuated after an Ewald meal, with grape-seeds said to have been eaten three weeks previously; free hydrochloric acid 24, total acidity 104, sarcinæ numerous. The man was emaciated, weak and nervous. The Chvostek, Trousseau and Erb phenomena were all positive. Deep reflexes were increased. The thyroid was not enlarged. The urine contained a slight trace of albumin. After three days' preparation with lavage, salt solution by rectum and 4 gm. (60 gr.) calcium lactate daily by mouth, he was operated on by Dr. Stanley Stillman. A greatly dilated stomach with marked stenosis of the pylorus was found and a posterior gastro-enterostomy was done. Recovery from operation was uneventful, there were no signs of tetany when examined three weeks later and the man was well when last heard from six months prior to this report.

Three other cases of gastric tetany, with less typical symptoms, might be reported in detail if time allowed. In a woman of 28 seen in March, 1909, dilatation of the stomach resulted from duodenal adhesions following gall-bladder disease. Operation relieved the condition and tetany did not recur.

In a man of 50 seen in February, 1908, epileptiform attacks ended in stupor and death. At autopsy the stomach was found tremendously thickened but not dilated; there was pyloric stenosis of long standing.

A man of 40 was seen in consultation in January, 1910. There had been symptoms of a dilated stomach for two years and severe tetanic seizures had been occurring in the last month. The man was moribund when seen. No autopsy was obtained.

Gastric tetany was first described by Kussmaul. It is, on the whole, a rare condition. Fleiner, in 1903, collected reports of forty cases and reported eight of his own. Since 1903 there have been reports of about thirty additional cases. The condition is generally associated with ulcer of the stomach or duodenum, with resulting stenosis and gastric dilatation. Most of the cases have been with benignant stenosis, but several cases of carcinoma have been reported. Cases have occurred with stenosis of the duodenum due to pressure from a pancreatic cyst or following stenosis due to gall-stone ulceration or from stricture of the bowel lower down. Warbasse has reported a case of tetany due to foreign bodies in the stomach, with cure after removal of the offending agents. As a rule hyperchlorhydria has been found, but this is not at all necessary, as several cases have been reported with an acidity. All degrees of spasm may be noted and isolated muscle cramps should always suggest, when they occur in a patient with pyloric stenosis, with or without a dilated stomach, the possibility of latent tetany. It is necessary in these cases, to test the Trousseau, Chvostek and Erb phenomena. In the majority of cases, however, gastric tetany is of a severe type, is of bad prognosis and in a great majority of the cases reported the patients have died. In 1898 Mayo Robson reported several cases of gastric tetany in patients treated by gastro-enterostomy, and since then about thirty patients thus treated. The results are far more favorable than by any other method and it becomes our duty to urge operation in all cases.

As noted above, it has been attempted to refer gastric tetany, as the other forms of tetany, to parathyroid insufficiency or to calcium deficit, but practically all questions concerning gastric tetany still await solution. We do not know why some cases of pyloric stenosis, particularly those associated with dilatation of the stomach, are followed by tetany while the great majority of apparently similar cases never show any symptoms of the disease. It may be perfectly well that in persons with parathyroid insufficiency brought about in other ways, the added intoxication from the stomach is suffi-

cient to call forth an attack. With removal of the stomach factor by operation the tetany is apparently cured. It would be interesting to observe such cases in future years and to see whether the tetany has actually disappeared or is merely latent. In women, pregnancy would be rather a crucial test of the completeness of the cure. It is worthy of note, as Frankl-Hochwart has indicated, that the gastric cases follow the general rule and are decidedly more common in the months from December to May. Of the cases above noted, one was seen in December, one in January, three in February, one in March, one in April.

CASE 5.—A married woman of 41 was first seen Feb. 28, 1908. She had two children 19 and 13 years of age; a pelvic infection had followed the first birth. She had lived for years in malarial districts but remembers no infections except so-called grip in the spring of 1905. In September, 1905, without obvious cause she had an acute collapse and was for some weeks prostrated and without appetite. Gradually she partially regained her strength but in May and September, 1906, she had a repetition of what she called her severe attacks. These recurred about twice a year, usually in spring and fall, apparently without cause. They were characterized by general nervousness, prostration, loss of weight and appetite, indefinite gastric symptoms and peculiar paresthesias—prickling and tingling of the extremities and numbness that comes in waves and extends all over the body. With this numbness was associated a peculiar anxiety, a feeling of "goneness" and of dread. The important data on examination were an absence of the usual physical stigmata of neurasthenia or hysteria, slight signs in hair and skin of thyroid insufficiency, a decided soft enlargement of the thyroid gland, enteroptosis with a large atonic stomach and a dilated colon. The pulse varied from 90 to 96, there was slight tremor of the eyelids and fingers. Pressure on the arms in the attempt to elicit the Trousseau phenomenon caused disagreeable paresthesias in the ulnar distribution and a general numb feeling such as she had already described. Neither Trousseau nor Chvostek signs could be demonstrated. A year later the patient was seen again with approximately the same sensory symptoms. During one of the periods of exacerbation in January, 1909, typical spasms of the hands had occurred. In April, 1909, Trousseau and Chvostek signs were both positive. Considerable improvement had occurred from abstaining from meat, regulation of constipation, small doses of thyroid extract and frequent administration of calcium lactate. The tetany was more probably due to parathyroid insufficiency, associated with the evident goiter and slight thyroid insufficiency, rather than of gastro-intestinal origin.

CASE 6.—A woman aged 45 was first examined March 22, 1909. She had always been subject to periodic headaches, evidently migraine. Her mother and mother's mother had suffered from headache of the same type. Both parents died of tuberculosis and in childhood she had had suppuration of the cervical glands and glands had been removed by operation. In recent years there had been some distress in the right hypochondrium at times, much flatulence and marked constipation. There had never been definite signs of appendix or gall-bladder disease. A laceration during birth of her only child, now 25 years old, had been repaired eight years previously and since that time she had not been so well. There had been occasional attacks of cramps in the muscles of the back of the neck and of the legs. She thought that her muscles had always been unusually sore and tender and she had always been bruised easily. Since an attack of bronchitis in January, 1908, she had felt weak and tired mentally and physically. The periods had become irregular the last few months. The facies suggested myxedema, which further examination confirmed. There was a large fat pad at the nape of the neck and tender pads were prominent over the back, arms and inside of the knees. There were old scars beneath the jaw and along the anterior margin of the right sternomastoid. The tissues below the jaw and over the front of the neck were decidedly thickened. The thyroid gland could not be felt. The eyebrows and scalp hair were thin, the temperature subnormal, the voice slow and weak. The heart was moderately dilated; the urine contained a slight trace of albumin. The abdomen was lax and the colon dilated. The blood-count on two occasions showed a moderate secondary anemia, leukocytes 9,000 to 10,500, and a relative increase of mononuclear elements. There were no phenomena of tetany at this time. Under small doses of thyroid extract, 0.06 to 0.20 gm. (1 to 3 gr.) daily, she felt much better, headaches were less frequent and objective signs improved. Thyroid could not be taken in larger doses as it caused palpitation and dizziness. It was omitted in June and July, and in August, during a day of headache, there was numbness and tingling from elbows to the fingers followed by characteristic cramping of the fingers. On Aug. 31, 1909, there were strongly marked Chvostek and Trousseau signs. During the winter and spring of 1909-10, the attacks were controlled by occasional administration of calcium lactate, a diet without meat, and small doses of thyroid extract and arsenic. She went abroad in the summer of 1910 and took no regular treatment. On Sept. 21, 1910, she came complaining of a feeling of tension, aching and stiffness all over and not confined to the extremities as formerly. During the past weeks she had had painful spasms in the feet associated with arching and inversion of the foot. The Trousseau, Chvostek and Hoffmann phenomena were marked. The same night there were repeated severe attacks with general rigidity and contractions of the muscles of the abdomen, jaw and face. Under rest, diet, calcium lactate 4 gm. (60 gr.) daily for a week, and later on tablets of parathyroid extract, the attacks have been controlled. Her general condition at the time of writing is still far from good, however. Weakness, nervousness and paresthesia are prominent symptoms. The Chvostek sign is still positive; Trousseau sign not obtained. The prognosis is grave. Hypodermic treatment with the parathyroid nucleoproteid or transplantation of both parathyroid and thyroid glands is contemplated in the future.

Two months since a woman was sent me for examination on account of protean nervous symptoms. The history of peculiar epileptiform attacks and the presence of a most marked Chvostek phenomenon suggested the possibility of tetany, and treatment with calcium salts was advised. Only continued observation will decide if such cases are really *fruste* forms of tetany or hysteria. During the month previous to making this report a girl of 16 had been under observation to determine the nature of epileptiform seizures that had been recurring during the previous two years. There was a history of loss of consciousness with some of the attacks. Those seen in hospital were hysteroid and not epileptic. Since the age of 16 there had been irregular motor phenomena—twitching and jerking, but no tonic spasms. In the hospital the Chvostek sign No. 1 was constantly present and the Erb phenomenon most marked. The Trousseau sign was not elicited, but the Schlesinger leg phenomenon was obtained. This would seem a case of tetany plus hysterical symptoms, rather than hysteria. Treatment with calcium salts and parathyroid extract is indicated. In this connection may be mentioned the frequent association of tetany and epilepsy; Dr. C. M. Cooper has recently reported an instructive case of this type. An article by Saiz[1] reviews the literature of the subject. We may recall that reports are accumulating which show apparent benefit in idiopathic epilepsy from treatment with calcium salts. Other spasmodic affections, blepharospasm and other tics, seem at times to improve under calcium or parathyroid administration. Berkeley has reported definite improvement in eighteen of twenty-six cases of paralysis agitans in which the patients were treated for long periods by small doses of parathyroid nucleoproteid prepared after the manner described by Beebe.[2] I have records of three patients with Parkin-

1. Berl. klin. Wchnschr., Feb. 6, 1911.
2. Modern Treatment, I, 561.

son's disease treated for months with fresh beef parathyroids and of one patient treated with injections of the nucleoproteid. No influence on the disease could be determined.

PROGNOSIS

Prognosis in tetany will naturally vary according to the etiologic factors and to the severity and acuity of the seizures. Operative tetany has become rare since careful methods of thyroid extirpation have been adopted and due regard paid to the preservation of the parathyroid. In gastric tetany the mortality is still 50 to 75 per cent. With prompt control of severe attacks by calcium intravenously or by hypodermic administration of parathyroid nucleoproteid, many more cases may be brought to operation and permanently cured. Frankl-Hochwart, from a recent review of fifty-five cases seen ten to fifteen years before, concludes that the prognosis of the idiopathic tetany is not nearly so good as was supposed. Of the patients eleven died, seven had chronic tetany, nineteen had slight symptoms described as "tetanoid," six had myxedema; only nine remained well.

TREATMENT

In the treatment of tetany causal factors should be remembered. In children rachitis should be treated with phosphorus and cod-liver oil. In gastric tetany surgery must remedy the underlying mechanical conditions that are the cause of stagnation, dilatation and intoxication. Emotional disturbances, exposure to heat or cold must be avoided. Meat should be excluded from the diet. Milk is well tolerated and may be of advantage by reason of its large calcium contents. Moderate catharsis and diaphoresis, saline irrigations and the ingestion of large amounts of water may be of slight value in elimination of metabolic poisons. Formerly thyroid preparations were frequently given and apparently with benefit. Kocher has seen disappearance of tetany symptoms under thyroid and thyroid preparations. Frankl-Hochwart and others have seen no benefit from thyroid preparations; rather the reverse.

There can no longer be any question about the efficiency of calcium and parathyroid administration. In severe acute attacks, whether postoperative, idiopathic or of gastric origin, 3 to 5 gm. (45 to 75 gr.) of calcium lactate in 400 or 500 c.c. of normal salt solution should be given intravenously. The action of calcium on control of symptoms is evanescent and the dose may have to be repeated in twelve or twenty-four hours. The parathyroid proteid prepared according to the directions of Beebe is of equal value and should be given hypodermically, 1 c.c. of a 1 per cent. solution every three or four hours for two or three days and then less frequently. Good results from both calcium and the parathyroid proteid in chronic cases have been reported by Beebe, MacCallum, Halsted, Putnam, Poole and others. Dried extracts of the gland have proved less efficacious. Pal reported marked benefit from the use of pituitary extracts in a boy with severe tetany. Ott from experiments on cats concludes that pituitary extract given hypodermically is equal to calcium in the control of spasm. In man the 20 per cent. infundibular extract that is now on the market may be given intramuscularly 7 to 10 drops three times daily. Transplantation of the parathyroids may be of great service in the future in chronic cases of tetany. Christiani has transplanted parathyroids in rats and cats and found the grafts successful after periods of two to five years. Von Eiselsberg transplanted a parathyroid obtained during a goiter operation into the rectus muscle of a woman suffering from chronic tetany, the result of a total thyroidectomy that had been done twenty-seven years before. The tetanic seizures disappeared except for occasional slight spasms of the glottis and electrical irritability became normal.

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A REVIEW OF 542 CASES OF PROSTATECTOMY *

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Included in this study are all of the cases in which a total or partial prostatectomy had been performed previous to April 1, 1911, in St. Mary's Hospital. Four hundred and sixty-one operations were performed for benign hypertrophy of the prostate, seventy-four for cancer, and seven for tuberculosis. The relative occurrence of cancer and hypertrophy was about one in six. Cancer and hypertrophy were observed together in several instances.

Although we were unable to determine any specific etiologic factors in this type of hypertrophy, the cases under our observation differed in this respect from those reported by von Frisch[1] and others. We noted that the condition occurred twice as frequently in men living in the country as in those living in the city. Only a small percentage of them had ever had specific infection.

The greater number of these patients were operated on between the ages of 60 and 70 years. In the series of 542 cases, eleven were under 45 years, 10. were from 50 to 60 years, 268 were from 60 to 70 years, 131 were from 70 to 80 years, fifteen were over 80, and the ages of the remaining twelve were unknown.

Regarding the civil state: 417 were married, ninety-four were widowers and nineteen were single.

The average duration of symptoms before the patient came for operation was 5.96 years. Although we have not chosen our patients because they were good risks for operation and have operated on patients many times that we knew had lesions of vital organs, we have endeavored to operate only on patients whose specific symptoms were dependent on prostatic enlargement. In our experience it has not always been easy to determine this point.

The primary symptoms of mechanical obstruction at the neck of the bladder are frequency, burning, pain and tenesmus. The secondary symptoms are loss of appetite, insomnia, loss of strength and weight. These secondary symptoms may be caused by damming back in the ureters and pressure in the kidneys; or they may be caused by intoxication from the presence of residual urine. The symptoms are identically the same and are probably caused by the same factors which produce symptoms in patients having insufficient kidney elimination. It is then very important to determine whether the patient is suffering from renal insufficiency alone, or whether he is suffering from auto-intoxication resulting from absorption and interference with kidney function, which interference is caused primarily by mechanical obstruction of the enlarged prostate.

Thompson[2] and Guyon[3] state that 34 per cent. of men 60 years of age and over are affected with genuine hyper-

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. von Frisch, A.: Die Krankheiten der Prostata, Leipsig, 1910.
2. Thompson: Quoted from Die Krankheiten der Prostata by von Frisch, Vienna.
3. Guyon: Quoted from von Frisch.

trophy of the prostate, and in only 16 or 17 per cent. are symptoms present. It is not unusual in routine examinations to discover a very decidedly enlarged prostate which is not producing obstruction to the urinary flow.

If a catheter be introduced into the bladder and but a slight amount of residual urine be found in a case having marked secondary symptoms without great difficulty in voiding, we may expect little or no benefit from a prostatectomy, no matter how great the tumor's size. Moreover, in such a case, we would operate with great risk. On the other hand, if a great quantity of residual urine is obtained with the catheter (and atony is excluded) the case is one for prostatectomy, even though the tumor be small.

During the past few years we have not only been able to reduce our mortality materially, but have secured a more satisfactory convalescence and better results by spending a little more time in preparing these patients for operation. With a permanent catheter in the urethra or through a suprapubic stab wound we place the patient in the same condition, so far as emptying the bladder is concerned, as he will be after the prostate is removed. In other words, we divide the treatment into two stages, relieving the secondary symptoms first. This will enable the patient to eat, drink, sleep and improve generally in health. We have observed that these patients drink very small quantities of fluids in order to diminish the amount of urine, as a great deal of suffering is caused in voiding. Their arteries are hard and inelastic, and if we allow the condition to prevail it will be difficult to fill up the circulation; therefore, we encourage the patient to take a great quantity of fluid for several days, which fills the circulation and throws the kidneys into marked activity.

It is interesting to note that in almost every instance in which there was any quantity of residual urine, by the introduction of a permanent catheter the specific gravity became much lower within a few days. We have frequently seen it change from 1020 to 1008 or 1009 within a short time. An operation should not be performed until this reaction has taken place and the specific gravity has risen, which may occur in from one to several weeks. Thus the effect of the prostatic enlargement is overcome before the cause is removed.

In determining whether or not to operate for enlargement of the prostate we should consider first the specific symptoms dependent on the enlargement from which the patient is suffering at the time. These symptoms, according to Freyer,[4] may be tabulated as follows:

1. There may be from 3 to 15 ounces of residual urine and the patient not using a catheter.
2. Extreme over-distention and dribbling.
3. Retention from time to time.
4. Ability to void some urine although the patient is obliged to employ a catheter to obtain rest and comfort.
5. Entire dependence on catheter.
6. Complete retention.

As a rule it is not advisable to operate if there be only two to three ounces of residual urine and only slight symptoms. This condition may exist for years without becoming worse.

One-fifth of the patients who presented themselves for operation were using a catheter either all of the time or occasionally. Nearly four-fifths of them had used a catheter at some time during their trouble. Eighty-one (15 per cent.) in the series had had a recent acute retention.

4. Freyer: Lancet, London, 1909, 1, 12: 5-1238

The cystoscope was not often used in prostatic cases as a means of diagnosis when it was first introduced. Within the past five years, however, we have employed it in over 95 per cent. of our cases and have found it of the greatest value in differentiating between tumors, cystitis, diverticulæ, in determining the presence of stones and in selecting the type of operation for a given case.

The perineal operation is the one ordinarily chosen because usually, a shorter and easier convalescence follows this method. But if the cystoscope shows a stone of any size in the bladder, if the median and lateral lobes are enlarged so as to make an intravesical tumor, or we are not able to reach the upper border of the gland with a finger in the rectum, we do a suprapubic operation.

The mortality in these cases is not affected by the type of operation. The suprapubic sinus, as a rule, requires a longer time to close, although the control is absolute from the time the urine is first voided through the urethra. The suprapubic operation is less likely to be attended with the painful complication, inflammation in the epididymis or testicle. The rectum has not been injured in any of our operations for benign lesions.

Of the 532 cases of which we have complete records, 323 were perineal operations for benign hypertrophy; twenty-five of these had stones in the bladder also. Fifty of the series were perineal operations for carcinomata. One hundred and forty benign cases were done by the suprapubic route; forty-one of these were associated with stones. Nineteen carcinomata were removed by the suprapubic route; two of these cases had stones in the bladder. Stones were present in 12.7 per cent. of the cases.

Closure of the urethral orifice is cared for in the first place by the smooth sphincter internus muscle which remains in a condition of constant tonus. This tonus must relax when there is need to void urine, and then comes the effect of the detrusor muscle.

The functional result, referring to the power to retain the urine after operation, is almost as important as the question of mortality. We rarely see patients with complete incontinence and consequently obliged to wear a urinal who can be kept at all comfortable, and many times they are much worse off than they were previous to the operation. Both the external and internal sphincters at the neck of the bladder must play some part in the control. In a case reported by Freyer (an autopsy following a suprapubic operation) the vesical sphincter was greatly dilated, yet there had been no incontinence. We know also that frequently after the tube has been removed following a perineal operation the patient has control by means of the internal sphincter before the perineal wound has become healed.

If the case be not complicated with cystitis, in most instances the symptoms will be entirely relieved by the removal of the obstruction, and it is not unusual for a patient to pass an entire night without voiding urine. We must bear in mind that a polyuria exists in these cases and that the intervals between emptying the bladder will increase as time elapses.

We have been able to trace 90 per cent. of our patients and nearly all of them report that they are absolutely relieved from pain. A number of patients operated on had partially lost control before there was any interference. Two of these patients, operated on by the suprapubic method, regained control after the operation. Two other patients in whom the same operation had been done were not relieved of this symptom. We have had

no patients with incontinence following the suprapubic operation for benign hypertrophy. There were two patients in whom the suprapubic operation was done for cancer, who had good control for some time after the operation, but who gradually developed an incontinence on recurrence of the old trouble. The presence of a stone in the bladder may be the cause of dribbling.

In practically all of our perineal cases we have done the intra-urethral operation through a median incision, being careful to preserve all of the prostatic capsule, especially in the region of the neck of the bladder. It has seemed to us most important to preserve the capsule, but not so important to save the elongated and distorted prostatic urethra. Seven perineal patients had some degree of incontinence, some of which had been dribbling for some time before operation. Three had old specific histories, though there was no evidence of the specific trouble at the time of operation. Besides these, there were eleven patients in whom the retentive power was not strong, but who were able to retain several hours before starting to dribble. Some of them had more difficulty in holding urine when lying down, while others could keep perfectly dry in bed, but would leak a few drops as soon as they got up. Several of the patients did not have good control immediately following the operation, but regained it in a few weeks.

To aid in recovering control we have employed the exercises suggested by Alexander and found them of great value. The procedure consists in filling the bladder and, as soon as dribbling begins, the patient is allowed to pass part of the fluid, holding the remainder as long as possible, then passing more, and so on until the bladder is emptied.

Ten patients report that it is occasionally necessary for them to use a catheter. In most instances this is not due to a mechanical obstruction, but the inability of the bladder to empty itself because of stretched muscle.

Seventy-four cases of carcinoma of the prostate were operated on, in most instances removing only a part of the gland. The immediate result has been quite as good as the results in benign cases. One patient is alive and comfortable four years and a half after the operation; one has lived over three years; four two years and six over one year.

Operation in these carcinoma cases should be advised only when obstruction and bladder symptoms exist. If the patients complain of radiating pains through the pelvis and back, in all probability the operation will not relieve them. We have observed seventy cases clinically diagnosed carcinoma of the prostate on which, for the above stated reasons, it did not seem advisable to operate. Two of these patients lived over four years with more or less discomfort and gradually increasing symptoms.

The average time required for a fistula to heal in perineal cases is twenty-one days. The average time in suprapubic cases is forty days. In our suprapubic cases three persistent fistulæ remain; in the perineal cases there were six fistulæ, although four of these healed and remained so for some time and then opened again.

Epididymitis and orchitis have seldom occurred except in patients having had previous attacks. This complication has been more common following the perineal than following the suprapubic operation.

In fourteen cases in which there was considerable infection at the time of operation or in which there had been previous attacks of epididymitis, just before doing a prostatectomy an incision was made through the base of the scrotum, pressing the vas deferens through, then severing and ligating the cut ends. This procedure only adds a few minutes to the operation. In none of these fourteen cases has there been any lighting up of the old trouble in the epididymis or testicles.

Fourteen of the 542 patients have returned on account of the formation of stones in the bladder following removal of the prostate. Two have returned a second time.

Sixty per cent. of this entire series are living and enjoying reasonably good health. Of the eighty-one patients who have died since leaving the hospital, thirty had carcinoma and twenty were reported as having been well for some time and then dying of other trouble. Twenty-nine died from kidney lesions at some time before the end of the second month. Autopsies were performed in nearly all of the twenty-nine cases and in each instance there was evidence of old infection or nephritis and acute nephritis superimposed.

This data would indicate that a great many if not all of these old men already had some sort of interference in kidney function. This impaired working ability should be interfered with as little as possible.

We consider that the treatment preliminary to operation is the most important factor which has entered into our work on these cases during the past few years. While it is not always necessary to employ a permanent catheter in the treatment, at the same time by its use we are able to eliminate from our mortality list a goodly percentage of the cases that previously had died from kidney changes.

ABSTRACT OF DISCUSSION

DR. ARCHIBALD MACLAREN, St. Paul: I recall some deaths that occurred during my early experience, wherein I did not recognize the danger from damming back of the urine and the infection of the kidneys, the post-mortems showing that the operation should not have been done at that time, if at all, on account of pyelitis, nephritis and shock.

The proposition that Dr. Judd makes regarding drainage is very good. I have seen him place a suprapubic catheter through a cannula and it is a very pretty aid in helping to clear up these cases, so that we can watch the patients and find out whether they ought to have any operation.

The common error in all of these cases has been, to my mind, surgical snap judgment, not taking time enough to work out their surgical possibilities.

Recently I removed a large obstructing prostate through the perineum in a man of 70, and he stood the operation so well that before he left the hospital I repaired a bad inguinal hernia which he could not control with a truss; and at that time in exploring the abdomen I found that he had a carcinoma of the large intestine which had never produced obstruction or bleeding. I did not know then and I do not know now how I would go about it to avoid making this same surgical error again.

I believe that Dr. Judd takes the only rational position in regard to the kind of operation. No single surgical method of attack is suitable for all cases. The decision between the suprapubic and the perineal operations ought to be settled by careful cystoscopic examination in each case. In my experience the mortality and the immediate results of the two operations are practically the same.

There is another type of case than the ones described by Dr. Judd, which I have never seen mentioned; and indeed I have never seen but one case myself. In this case the man had a partially controllable, overdistended, leaking bladder. He could urinate about every hour and a half, passing a couple of ounces. In his lower abdomen he had a large irregular tumor which had been under observation by two excellent men for over six months. This man was supposed to be suffering from a malignant tumor of the lower abdomen. I never got quite so nearly caught in my life as on this man who had been confined to his bed for nine months. He had never

had a catheter passed into his bladder. The gradual catheterization and later prostatectomy proved a perfect cure even with potency, which was a very important element so far as his judgment went.

I feel that the so-called conservative operation for carcinoma of the prostate should be very carefully considered. I believe that Dr. Judd will tell you that many of these cases of carcinoma were not diagnosed, perhaps, before the operation; but if a large, hard tumor of the prostate can be determined by the finger to be a carcinoma of the prostate, I doubt very much whether many of them ought to be operated on, in spite of Dr. Judd's proposition. Recently I sent a man, not to Dr. Judd, but further east, who had a conservative operation for carcinoma of the prostate. He came home in three weeks and almost immediately had the most terrific hemorrhages into his bladder. He was much more uncomfortable; his life was shortened. I believe that if these people can be taught the intelligent use of the catheter it will be much better for them than to undergo an operation, when only a part of a cancerous tumor is removed.

DR. GRANVILLE MACGOWAN, Los Angeles: Not all of us can have great hospital facilities like the Mayos, and are compelled to operate without them; and we do not have such unusually competent laboratory assistants to examine our pathologic specimens. Consequently any statistics we might give with regard to the number of cancers found among the prostates we have removed, would not have any value. I am satisfied to accept as a standard the statistics prepared at St. Mary's and Johns Hopkins.

After an experience of twenty years in these operations, which very closely approximates Dr. Judd's figures in total number, I am frank to confess that I frequently cannot tell by my finger in the rectum, whether or not a man has cancer of the prostate. If there is much induration extending out along the seminal vesicles and including one or both of them, or the rectum is bound onto the prostate, I am satisfied that I am dealing with a cancer. If there is an ulcerative condition in the posterior urethra which can be seen through a large straight urethroscope, and it appears hard to the eye and is unyielding when touched with a swab, or if by a cystoscope or a straight urethral tube one can see similar ulcers at or within the neck of the bladder on projecting prostatic lobules, there is but little doubt that the condition is cancerous; but I have been deceived more than once when all these conditions were present.

I agree perfectly with Dr. Judd in regard to the necessity of preparing patients when there is polyuria, low specific gravity, low output of urea and symptoms of pyelitis. When the blood-pressure runs from 160 to 220, a similar need for preliminary preparation exists.

I know it is not necessary, and believe it is highly injudicious and cruel, to get a man out of bed in two or three days after operation.

You need not hurry in removing a prostate, any more than you need hurry excessively about any other form of operation. Take whatever time is necessary to complete what you started out to do. The old man who has placed himself in your care expects to urinate with ease, and he wants to empty his bladder and have his nightly rest; and you have no right, by operating on him against a split second stop-watch, to leave a portion of his prostate to obstruct and continue the condition in which he came to you. I have never seen a case of pneumonia following a prostatic operation. I think the fear of pneumonia is a bogey in these cases. I never insist on my patient getting out of bed until he is satisfied to do so and can move comfortably, and an extremely low percentage of fatalities justifies me in this course.

DR. CHARLES D. LOCKWOOD, Pasadena: I have done something like sixty prostatectomies in Pasadena, and there are one or two points that I want to speak of in connection with the operation.

1. As to hemorrhage. Dr. Judd did not speak of hemorrhage as a complication. The two patients that I have lost have died of hemorrhage, one a perineal, and the other a suprapubic operation, and I have had one patient whom I nearly lost from hemorrhage coming about the seventh day after operation. I have noticed that these men who heal up very quickly (this man healed so that he could pass his urine on the seventh day) are more likely to bleed than those who heal more slowly.

2. As to epididymitis, this has been a rather frequent complication with me, and I have noticed that it came on when I used a sound early. I was in the habit of passing a sound when I would remove the tube on the sixth or seventh day. Since I have abandoned that practice, epididymitis is rare. But I have had one case that occurred on the day the man began to pass his urine, and I think that is the time we are most apt to get epididymitis.

I believe too much emphasis cannot be laid on the necessity of preliminary treatment in these old men with distended bladders and with low vitality.

DR. EDWARD STARR JUDD, Rochester, Minn.: Dr. MacLaren stated that he did not believe it advisable to operate in all cases of carcinoma of the prostate. It was not my intention to convey the impression that we always advised operation. In a great many cases of hard carcinomas, as Dr. MacGowan has described them, which we run across in doing routine examinations, in which there had been no troublesome symptoms, nothing could be accomplished by doing a partial prostatectomy. But in the cases of carcinoma in which we have operated the patients came for treatment on account of obstruction to the flow of urine, and by removing a portion of their prostates we can relieve them of just those symptoms. As I have stated we have had something like seventy cases that were diagnosed as carcinoma in which we did not advise operation, because a good many of these patients complained not so much of the symptoms of difficulty in voiding urine, as of pains radiating around the back and down the sciatics. Very possibly a good many of them already had metastatic lesions in the lumbar vertebræ or some of the other bones. Dr. MacGowan says he is not always able to diagnose carcinoma of the prostate. Of our seventy-four cases of carcinoma, sixty-five were referred to us for carcinoma; nine cases were supposed to be benign and turned out to be malignant after microscopic examination.

Regarding the point of hiccup we have always considered that an evidence of insufficient kidney elimination; when the patient begins to hiccup it means that he is not eliminating. We were usually able to relieve that condition by sweats and increasing the amount of fluids. I do not know the exact percentage of cases in which we have observed this symptom.

SHORTENING OF AN OCULAR MUSCLE BY TUCKING *

H. W. WOODRUFF, M.D.
JOLIET, ILL.

The literature of operations designed to increase the power of ocular muscles contains descriptions of more than fifty methods. All of these may have served and many of them may be still serving their originators and others in the field for which they were designed.

It must be difficult, however, for the inexperienced operator to select from this number the one which will best serve his purpose. Naturally, in making his choice he should be guided by the following considerations: First, the safety of the method; second, its effectiveness, immediate and permanent; third, the cosmetic result; fourth, ease of performance; fifth, period of convalescence.

All these operations may be divided into three classes: First, those in which a new insertion is made nearer the cornea (the advancement operation proper); second, those in which the muscle is shortened but the natural insertion preserved, as (a) the tucking operation and

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

(b) resection of a portion; third, those which are intended both to resect and to advance. This is the method most frequently employed. The consideration of these methods is still further complicated by the fact that the muscle alone may be dealt with, or the muscle together with its overlying capsule or muscle, capsule and conjunctiva together. None of these operations is generally considered unsafe, certainly not by the originator. There is, however, a real danger in any operation in which the attempt is made to secure an artificial insertion nearer the cornea, whether the tendon is resected or not. Those methods in which the conjunctiva is advanced or resected have the further disadvantage of leaving more or less permanent disfigurement at the site of operation.

Fig. 1.—Needle for the insertion of suture in the muscle.

SUMMARY OF LITERATURE

Howe,[1] in describing advancement operations, says:

One of the greatest difficulties in all these operations is that they require the anchorage to be made in what is usually described as the "episcleral tissue," but in reality these sutures are seldom or never in the episcleral tissue only. They are either in the conjunctiva, which is elastic and easily torn, or the needle enters the sclerotic itself. That layer near the cornea is only about 1 mm. thick. The smallest needles are usually more than 0.5 mm. thick, including the curve, and with a good thread such a needle, near its eye, measures often from 0.6 to 0.8 mm. If we use a larger needle it either does not penetrate the sclerotic or, if it does so, it is at the risk of passing through into the ciliary region.

Howe further relates the following incident:

The danger of attempting to anchor the stitches in the episcleral tissue was once impressed on me by an accident which might occur to any one. The operator, at that time one of our leading colleagues in Berlin, was making an advancement

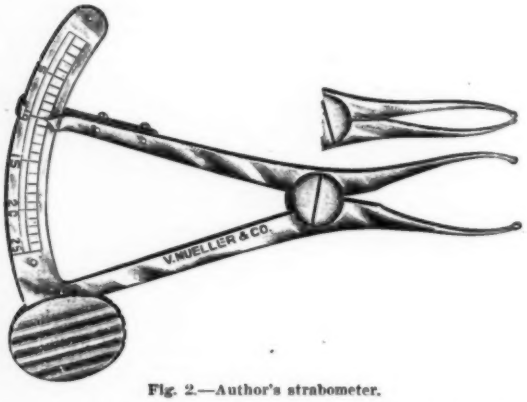


Fig. 2.—Author's strabometer.

and on passing a small needle through this episcleral tissue the needle broke. The rough end of the part in the globe could be felt only as a point. It could not be extracted by the cilia forceps nor in any similar way. After many efforts, it was necessary to abandon the original operation, to make an incision which opened the globe, and even then the fragment could be found only after careful search for a long time.

I have seen one case of sloughing of the sclerotic, two of perforation of the sclera, and two in which the caruncle was drawn toward the cornea.

1. Howe: Muscles of the Eye, ii, 350.

R. Wirtz[2] reports a case of phthisis bulbi following an advancement operation, as a result of suppuration of the cornea in a patient just recovered from an attack of angina.

In a discussion of a paper by Dr. Callan[3] before the American Ophthalmological Society, in 1908, Dr. David Webster stated that following the advancement operation he had seen one eye lost by panophthalmitis, three or four cases of corneal ulceration and on more than one occasion the operator's needle had entered the anterior chamber.

Dr. Warwick Cowgill[4] reports a case of ulcer of the cornea following an advancement operation in which there was no injury to the cornea. He attributes the ulcer to the reduction of corneal nutrition from the severing of the conjunctiva and the pressure of the anchoring suture. The eye was preserved but with a leukoma occupying one-fifth of the corneal surface and extending to its center.

Jackson says:[5]

A large part of the difficulties regarding advancement operations arises from the character of the tissue dealt with. The conjunctiva and subconjunctival tissue being extremely loose, easily dragged away from their normal position and readily cut by sutures, offer a poor anchorage for supporting sutures.

. . On the other hand, the firm tissue of the sclera offers an ideal anchorage for sutures. The objection to its use is the risk of perforating the whole thickness of the sclera and opening a channel for infection to the interior of the eye-ball.

. . Even with care and in competent hands it is likely that complete perforation of the sclera is not very rare. Cogan, passing sutures in pig's eyes, found the sclera perforated in half of them.

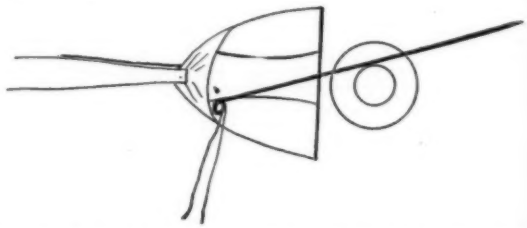


Fig. 3.—Showing method of inserting suture in the muscle border.

H. D. Noyes,[6] referring to deep anchorage at cornea sclera junction, wrote: "I have seen the needle points sometimes appear in the anterior chamber."

My chief criticism of the so-called advancement operation, however, is the insecurity afforded the sutures in muscle and in sclera. Beard says:[7]

A great deal has been said about the advantage of this or that advancement procedure in that the arrangement of the suture or sutures in the tendon tends to prevent its cutting out. From an abundant experience with his own method both as performer and onlooker, the writer has long since come to the conclusion that it is far easier for the average surgeon to obtain a firm hold for the thread in capsule and tendon than in the globe.

The reason serious accidents do not follow the advancement operation oftener is that the operator, erring on the side of safety, prefers insufficient anchorage to perforation of the sclera.

2. Wirtz, R.: Ztschr. f. Augenh., January, 1910.
3. Tr. Am. Ophth. Soc., 1908, ii, Part 3.
4. Cowgill, Warwick M.: Ophth. Rec., x, 3.
5. Wood, C. A.: System of Ophthalmic Operations, i, 734.
6. Noyes, H. D.: Text-Book on Disease of the Eye, p. 172.
7. Beard: Ophthalmic Surgery, p. 203.

The authors of the various advancement operations claim ease of performance, and it is difficult for one to judge by description alone as to this point. None of them is as simple as tenotomy and for this reason one is often tempted to cut the stronger muscle when his better judgment tells him that the weaker should be strengthened. One of the strongest claims for the advancement operation has been that the muscle takes its attachment alone from the new insertion, thereby increasing its power very much. Müller[8] has pointed out that the only effect of advancement is to shorten the muscle, for the advanced muscle probably grows fast to the bulb along the entire interval between the side of the wound and that of the old insertion and does not unwrap itself from the globe even in extreme rotation. Hence the advanced muscle is practically inserted at the site of the original tendinous insertion.

Froelich says:[9]

If the end of an ocular muscle is transplanted over its natural insertion toward the cornea, the inner surface of the advanced muscle grows fast to the outer surface of the sclera. This was shown in the following case: A young man needed a readvancement of his right external rectus which had been advanced some years before. The conjunctiva was undermined outward from the scar at the margin of the cornea, so as to lay bare the dark red muscle which had to be separated from the sclera with scissors. The attachment was firm and extended exactly to the physiologic insertion, beyond which the relations between the muscle and sclera were normal.

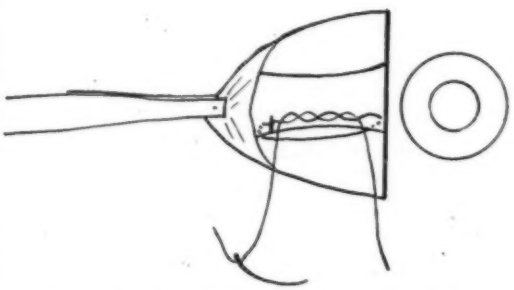


Fig. 4.—Illustrating method of tying the Worth suture.

In the same article, Froelich further says:

The usual explanation of the effect of an advancement is that because the advanced muscle girdles the globe to an extent increased by the distance between the original insertion and the margin of the cornea, its efficiency is increased so as to enable it to produce greater motility of the eye-ball. But this is not the true explanation as I demonstrated in the following way: During the advancement of an external rectus of a leukomatous eye, I measured the distance of the insertion from the corneal margin with a pair of compasses. Frequent measurements of the excursions of the eye were made during the next six weeks, and at the end of that time I made a curved incision 1 cm. long, parallel to the line of insertion, down to the sclera, at the distance from the cornea previously determined. This incision completely isolated the transplanted end of the muscle from the rest, and yet the efficiency of the muscle was not in the least impaired. This showed that after the operation the anatomic insertion still formed the point of termination and insertion of the muscle which had been shortened by the portion advanced and thereby rendered more able.

Jackson says:[10]

It has been assumed that an advancement operation causes the tendon of insertion to form a new attachment to the eye-ball at its anterior extremity, and to act on this attachment as it did on the original insertion. It is on this assumption that the beautiful demonstration of the superiority of advancement over tenotomy of Landolt and his followers has been based. But the writer's experience in secondary operations agrees with that of others to indicate that the advanced tendon does not become attached to the eye-ball simply by its anterior extremity, but rather that the attachment extends at least as far back as the original insertion of the muscle and sometimes farther.

It is evident, then, that other operators have recognized these disadvantages as indicated by the history of the tucking operation. It is supposed to be the result or rather the outgrowth of the operation of de Wecker who first advanced the muscle without severing the tendon. Since then various operations have been described by Lagleyze,[11] Savage,[12] Suffa,[13] Bourgeois,[14] Maxwell,[15] Clark,[16] Bruns,[17] Green,[18] Todd,[19] Levinsohn,[20] Briggs,[21] Valk,[22] Colburn,[23] Suker.[24]

These methods vary in the manner of making the tuck, insertion of the sutures and the use of special instruments or tuckers. Some make the fold on the distal side of the tendon insertion and some on the proximal side. These latter do not differ in principle from the de Wecker method. It being necessary to suture to the sclera, the only advantage over advancement with severance of the tendon is that if the suture tear out the result can be no worse than at first.

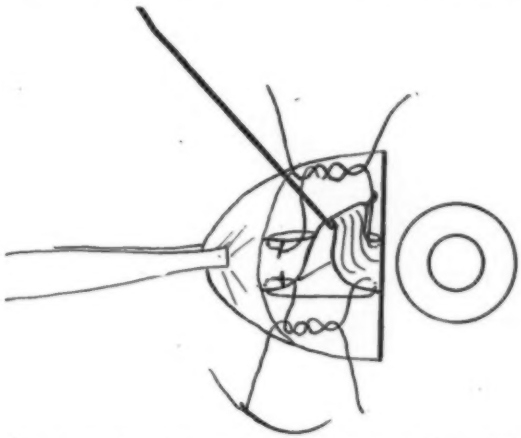


Fig. 5.—Portion of the muscle held up on a strabismus hook which becomes the tuck when the sutures are tied.

TECHNIC

My experience with the tucking operation began about nine years ago at the Illinois Eye and Ear Infirmary. My favorite advancement operations at that time were of Worth and Wooten and, in what I will call the simple tucking operation, I have retained the important features of each. At that time, Dr. Henry Boettcher sug-

8. Müller: Klin. Monatsbl. f. Augenh., xxxi, 127.
9. Froelich: Arch. Ophth., xxxiv, 622.
10. Wood, C. A.: System of Ophthalmic Operations, i, 736.
11. Lagleyze: Arch. d'opht., 1892, xxii, 668.
12. Savage: Ophth. Rec., March, 1893.
13. Suffa: Arch. f. Ophth., 1910, xxxviii, 254.
14. Bourgeois: Bull. et mém. de la Soc. franc. d'ophth., 1906.
15. Maxwell: Brit. Med. Jour., 1896, ii, 819.
16. Clark: Tr. Sec. on Ophth., Am. Med. Assn., 1900, p. 164.
17. Bruns: Ophth. Rec., 1904, p. 267.
18. Green: Ophth. Rec., 1899, p. 462.
19. Todd: Ophth. Rec., 1902, p. 73.
20. Levinsohn: Klin. Monatsbl. f. Augenh., September, 1909, p. 299.
21. Briggs: Tr. Am. Acad. Ophth. and Oto-Laryngol., 1908, p. 212.
22. Valk: Post-Graduate, July, 1895.
23. Colburn: Ophth. Rec., April, 1902.
24. Suker: Am. Jour. Ophth., May, 1904.

gested trying Todd's new tucker and we performed a number of operations according to this method, finally doing away with the tucker. At the March, 1910, meeting of the Chicago Ophthamological Society,[25] I showed six patients who had been operated on for strabismus, and described the operation. Since then, I have still further demonstrated the fitness of the operation, and have derived considerable satisfaction by the use of the special needle shown in Figure 1, suggested to me by Dr. Tivnen, and by a pair of compasses (Fig. 2), by the use of which an approximate idea of the relationship between the amount of tucking and angle of correction may be obtained. This strabometer is graduated in millimeters. On the back of the scale is a cog which slips into a depression at every millimeter and rests there securely. This arrangement is the same as that on the ophthalmoscope and was suggested by Dr. Schneider of Elgin. Also, during the year I succeeded in correcting divergence of 65 degrees by double tuckings of the interni with tenotomies of the externi, securing binocular single vision.[26] This patient was shown at the December, 1910, meeting of the Chicago Ophthamological Society.[27]

TECHNIC OF OPERATION

The operation is now performed as follows: Local anesthesia is secured by the injection of from 20 to 30 minims of a 1 per cent. solution cocain with 5 minims of epinephrin solution added beneath the conjunctiva over the site of the muscle. The resultant swelling is massaged until it has almost disappeared. A vertical incision is made through the conjunctiva only, over the site of the tendon insertion about 15 mm. in length. The flap is dissected up from the underlying capsule as far back as 15 or 20 mm. While this flap is held out of the way by an assistant, the capsule is incised along the upper border of the tendon as far as the conjunctival dissections. A similar incision is made along the lower muscle border. Formalized pyoktanin catgut No. 00, is inserted into the muscle by the use of the needles shown in the cut; these needles resemble aneurysm needles on a small scale. It is simply necessary to pass the needle point through the muscle border (Fig. 3) about one-quarter of its width drawing the thread through with the forceps. The suture is firmly tied in a double knot and one end threaded through an ordinary curved needle is again passed through the muscle posterior to the knot from without, inward, according to Worth[27] (Fig. 4). This suture which lies next to the sclera is passed through the tendon at its insertion from below upward or rather forward. A similar suture is placed in the upper muscle border. When these two sutures are tied, the tuck is formed in muscle and capsule, and the muscle correspondingly shortened (Fig. 5). The conjunctival edges are then brought together with silk. The eye operated on alone is bandaged.

RESULTS

1. The highest degrees of strabismus may be corrected by tuckings with tenotomies of the opposing muscles.

2. Torsion is prevented by measuring the distance from the tendon insertion back to the point of entrance in the muscle and making both upper and lower correspond.

3. The method of tying the suture in the muscle prevents its splitting the muscle fibers while traction is made on it and when tied to the tendon insertion it is a physical impossibility for the muscle to become loosened as the traction is at right angles to the direction of the muscle fibers.

4. By disturbing the capsule so little considerable swelling is avoided, Wooten,[28] but by including the overlying capsule, somewhat greater effect is produced.

5. By not sacrificing any portion of conjunctiva or advancing it, deformity and unsightly scar tissue are avoided.

6. A tucking of a given amount of muscle will result in not more than half as much correction in the position of the eye.

In a convergent strabismus of 10 mm. it is well to tuck 15 mm. of muscle and tenotomize the rectus internus leaving a slight undercorrection. For anatomic reasons a 15 mm. tuck is about as much as one is able to make. Then, too, the externus itself is about 50 mm. in length and a shortening of a greater proportion might easily impair its power of contraction. Motais has shown that the contraction of a rectus muscle necessary for its full physiologic movement is about one-half its length.

I feel that I can recommend this operation to my colleagues as being absolutely safe, permanently effective, devoid of any permanent noticeable deformity, easy to perform under local anesthesia in any one over 12 years of age. The period of convalescence need not be longer than one week.

ABSTRACT OF DISCUSSION

DR. G. C. SAVAGE, Nashville: The operation described by Dr. Woodruff is a modification of my operation without improvement. Everybody knows that the tucking operation is mine, so that I need not claim it in this presence. I am glad to have the endorsement of Dr. Woodruff and some twelve or eighteen others who have made some slight change in method. The original tucking operation as described in my first writing is the ideal tucking operation of all. The incision is a horizontal incision just below the margin of the muscle through the conjunctiva and capsule of Tenon. The tendon, conjunctiva, the muscle and the capsule of Tenon should all be included in the tuck. The Price suture-plate is used and the sutures are passed through it and the knot tied on the plate. The operation should be done with silk and not with catgut. The stitches should be allowed to remain a whole week.

The only advancement operation that is worth anything is the operation of Lagleize. It is the ideal advancement operation in high degrees of squint. Shortening is better than advancement if it can be made to accomplish enough. Never make an incision in the capsule at all in the Lagleize operation. The conjunctiva must be held back, while the muscle stitch is being taken. The Lagleize operation differs from all others in that the tendon is not cut, but is simply flat-folded over the insertion. It is cut in other operations for advancement. For a given distance between loop of suture and tendon-insertion, twice as much effect can be accomplished with the Lagleize operation as with any tucking or shortening operation.

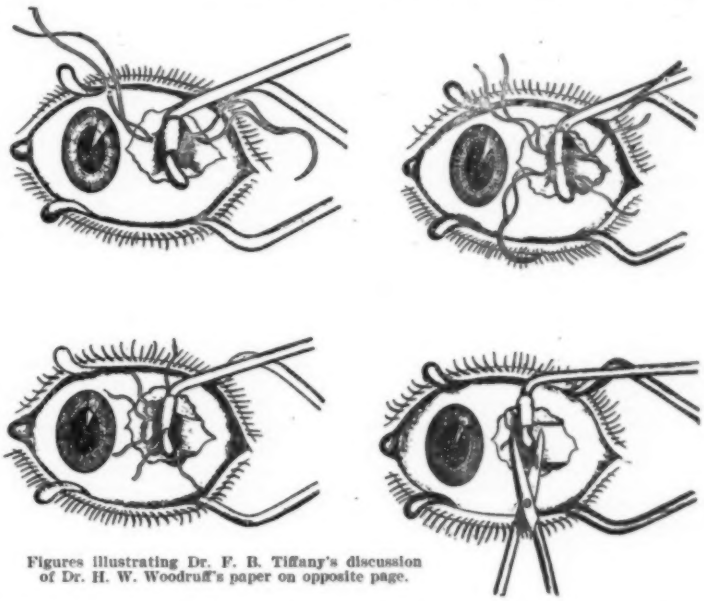
DR. F. B. TIFFANY, Kansas City, Mo.: I would use one needle instead of using two and I would use the catgut suture. I would merely divide the conjunctiva so as to expose the attachment of the tendon; then with a double thread I would insert the needle so as to grasp the root of the tendon in the sclera and come out, enter the needle again and come out at another point. Then I would cut the suture so as to allow it to fall into three pieces, one at the lower part, one at the upper and one at the center; then tie the suture, bringing the muscle opposite as far as I wish. I now close the incision and allow the catgut to be absorbed. There is no necessity of removing the suture. My method is shown in the accompanying illustration. [On opposite page.]

25. Woodruff: Jour. Ophth. and Oto-Laryngol., April, 1910, p. 1.
26. Woodruff: Jour. Ophth. and Oto-Laryngol., March, 1911.
27. Worth: Ann. Ophth., July, 1902, p. 377.
28. Wooten: Ann. Ophth., July, 1902, p. 431.

DR. VARD H. HULEN, Houston, Texas: In one particular this excellent operation of Dr. Woodruff's is not an ideal operation. The same remark would apply to the operations of Dr. Savage and Lagleize. There never will be an ideal muscle operation devised that does not eliminate the objection of pulling on the fixing sutures to bring the tissues into the corrected position. I had opportunity last year of presenting a method of operating which eliminates that important feature by putting through a double suture in the sclera and also in the muscle. It is not a question of whether to advance or whether to lap; that is a question of personal choice. My operation applies to either. But if we put a suture into the muscle and a suture, we will say, into the sclera and draw the eye into position by pulling on them, we are breaking one of the most important rules of surgery, and that is, the dragging of tissues into place by pulling on the sutures which are to be tied. The way I got around that you can learn by referring to last year's Transactions of this Section. With my traction sutures you can pull the eye into position to just the extent you want; then simply tie the other sutures to hold that position. That principle, I believe, is absolutely necessary for any ideal muscle operation.

DR. EDWARD JACKSON, Denver: There is a principle with reference to sutures that I think is very often overlooked. If you put a stitch through paper, for instance, and drag on it you can very readily cut that stitch out, and you can cut into tendon or muscle, particularly in the direction of the fibers. If you take two thicknesses of the paper and put a suture through both and drag on it you can tear the paper in all directions before you move the position of the sutures in the least. If you put the suture through the tendon and make traction from a distant point the tendon is cut, and even with Dr. Hulen's method the traction is made on the same opening as the permanent suture passes through. But if you bring together the tissues that you want to sew, before you use any suture, with a forceps, or in any other manner, as Dr. Woodruff describes, bringing the two surfaces together and then putting the sutures through and tying them, you will avoid the necessity for elaborate sutures like those of Worth or Suffa, and you will get absolute fixation without cutting. When it is an advancement operation, put the sutures into the sclera and pull the tendon forward in its proper position and tie the tendon right down over the sclera. You can then leave in the suture until the tissues soften and it comes out, and there is no cutting and no tension on the suture. I think a good many elaborate operations for tendon-tucking and advancement would not be in existence if that point were realized. The difficulty of putting a suture through a membrane and pulling on it from a distance is considerable when compared with putting the suture right through the tendon and through the tissue it is to be sewed to. Make the most simple suture possible, then tie it there and it will hold absolutely. The only thing about such a suture is that it tends to crinkle up the tendon; but this is avoided if two of the openings are close to the insertion in the sclera; there is then none of that buckling up when the suture is tightened.

DR. JAMES W. MAY, Kansas City, KAN.: I have never seen Dr. Savage's operation and therefore could not decide from my own personal knowledge as to its merits. I have seen Dr. Woodruff's operation and it certainly does seem to me to be an operation from which there is great permanent benefit. I have not done the operation. Last May Dr. Woodruff came down to Kansas City, Kansas, at my request and at the clinic operated on three patients. In one of them there was a convergence of 25 degrees. A tucking operation on the external rectus corrected 15 degrees and left 10. In another patient with the same convergence, 25 degrees, the tucking operation relieved 15 degrees. In the other, a case of divergent squint, a tucking operation was done on the internal rectus and a tenotomy on the external, with a perfect result, and the man now has single binocular vision. I believe that a tenotomy of the opposing muscle in the two convergent cases will entirely correct the convergence. It certainly seems to me, speaking for the young men of the profession, whose experience must necessarily have been small, that it is the operation of choice on account of its safety. I do not think that any one will question that the advancement operation is attended with some dangers, especially in the hands of those who are really adept. In placing the suture in the episcleral tissue near the cornea, as Dr. Woodruff has pointed out, a perforation of the globe can be done without much force. And also in taking up a bite in the suture if you are a little in doubt as to how far to go you are very apt to take too small or thin a bite and have the sutures tear out, which has happened in a great number of cases. As mentioned in the paper, sloughing of the sutures in advancement will occur. Ulcerations of the cornea have been known to follow operations for advancement. Just why, I do not know. It strikes me that they may be due to interfering with the circulation, or a corneal injury was sustained and infection supervened. Of course, there is always a possibility of faulty metabolism, of which we have heard so much and know so little. There is one thing in Dr. Woodruff's operation that I am a little in doubt about and that is the catgut sutures. How long do they remain, or have they absorbed too quickly in any case? In one of the patients operated on for me I had an idea that the sutures did not hold sufficiently long to produce a gluing together of the tendon and a permanent result.



Figures illustrating Dr. F. B. Tiffany's discussion of Dr. H. W. Woodruff's paper on opposite page.

DR. C. D. WESCOTT, Chicago: I have seen the results of a number of Dr. Woodruff's operations. The method is certainly all that he claims and, as Dr. May has said, I believe it should be the operation of election for the novice in eye surgery. As something has been said about the dangers of advancement, I would like to say a word on that score. For a number of years I have done the single-stitch operation described by Dr. Jackson in his text-book. I believe I can secure a little more effect with a single operation than Dr. Woodruff secures with his operation. I use finer silk and a finer needle than is used by most men in doing an advancement. I have had the needles sharpened so that they will respond to the test for

the point of the cataract knife. If I have ever penetrated the sclera no untoward result has followed. I never have tried to hurry in this operation, but I know it can be done in six or eight minutes if one chooses to do it so quickly, and it has fulfilled all the indications. I endorse what Dr. Woodruff has said as to the point of pull after all these operations. I do not believe we gain anything in leverage by putting the sutures anterior to the original attachment of the muscle.

DR. WILLIAM ZENTMAYER, Philadelphia: One thing bothers me and that is the large effect Dr. Woodruff gets from his operation. I have used Dr. Savage's operation—I believe it was his—just for the reason that I did not get large effects from other operations. I used it before I came away from home and corrected only 15 degrees in one of my cases, and perhaps a little less in another. The operations were combined with tendon stretching of the opposing muscle at the time of the tucking operation. I devised a needle just like that, because on two occasions I have seen the needle enter the anterior chamber. The operator can make the puncture from the sclera outward. I once had a perforation of the sclera from sloughing. A child on whom I had done an advancement wished very much to go home to spend a holiday from Thursday until Saturday. It was on the third day after the advancement and I permitted it. The patient did not return for five days, when the vitreous was protruding through the sclera. I took the child to the hospital and by energetic methods saved the eye. Five years later the child appeared in the clinic and it was interesting to see the scar in the fundus where the perforation had occurred, visible through the ophthalmoscope.

DR. OSCAR DODD, Chicago: Being associated with Dr. Woodruff at the hospital I have had occasion to see a number of his operations and have had occasion to do some of them. I think this operation, at least in my own hands, has obviated two objections which I have had to ordinary tendon-tucking. One was the failure to get a sufficient result. You can get a sufficient result with this operation. The other objection has been the bunching up of the muscle after the shortening. I have been surprised that the thickening has not been more with this operation than in the ordinary advancement operation. As regards the amount of shortening which can be obtained, I have seen Dr. Woodruff in several cases get an amount which I hardly feel like stating—probably 30 to 40 degrees—bringing the eye around with one operation. In one operation the correction was something over 40 degrees, and with a slight clipping of the center of the tendon I got full correction. I think there is one caution that should be made, and that is care not to get too much, because it does not give. The amount you get is absolutely held. For one, I feel like commending the operation very much, although it is not a simple operation to do. Any one who goes into it with the idea that it is easy to pull up the muscle with the hook and bring the loop together, I think, will find the first time that he is mistaken. It can be done, but an assistant to carry out orders will be needed. Without a skilled assistant I find it very difficult.

DR. E. W. ALEXANDER, San Francisco: I have tried the operation that Dr. Hulen illustrated last year repeatedly and I find that one or two of his remarks are important to follow.

One is that you should expose the sclera in any advancement operation, and if you are going to do a tucking operation it would be as necessary as in the advancement in which you cut the tendon entirely loose. Then you can judge just how far your sutures are extending above or below the original insertion of the tendon, and you can apply the new insertion in such a way that there will be no hyperphoria or hypophoria following your advancement operation. Another point is that a rather coarse grade of silk seems to me to be very much less liable to tear through and cut than a fine suture, and even a No. 4 or No. 5 can be used with a narrow tendon in children without any difficulty in this respect.

DR. ROBERT W. MILLER, Los Angeles: In my work I have been less inclined to do advancements in late years than formerly. While I have never seen in my personal work any actual damage as the result of too deep scleral punctures, nor have I had any corneal sloughs, yet I have heard of such experiences in the work of others, and have experienced some anxiety in cases of my own. I think that Dr. Woodruff has done us good service in giving us his paper and calling attention to his several points of advantage. The fact that we do not gain a point of attachment further in advance, which seems to have been pretty well demonstrated, is practically new to many of us. However, it seems to me possible that the anchorage, being more extensive when we advance the tendon, it may be firmer, and the result of the operation may be in some way more accurate. Another point in dealing with these cases, which has been mentioned by another speaker, occurs to me—that of stretching the tendon of the opposing muscle.

While I think he lays no claim to priority, Dr. A. T. Davis of New York has employed stretching in such a large number of cases as to point strongly to its value. Whether we tenotomize the tendon of the opposing muscle or not, a vigorous but well-regulated stretching has seemed to me to contribute much toward the desired result.

DR. H. W. WOODRUFF, Joliet, Ill.: Dr. Savage, in describing his operation, calls attention to the inclusion of the conjunctiva in the fold along with the capsule and muscle. I have endeavored to make this point clear in my paper. The conjunctiva should be left entirely alone. It is simply a protective coat and has nothing to do with the strabismus. If it can be left alone it is of advantage, because cases of deformity of the conjunctiva, from shortening, do occur. I have referred to cases in which the caruncle has been drawn toward the cornea. An incision is made in the conjunctiva simply to expose the field of operation. This is afterward closed by fine silk sutures, so that there is a minimum amount of cicatricial tissue. Some seem to have the idea that the operation is not effective in high degrees. Dr. Dodd has answered that point. There is no doubt about the ability to secure a very large effect if necessary; first by tucking, and then by tenotomy of the opposing muscle. I have never had any experience with Dr. Hulen's method, but I agree with him that, as yet, no muscle operation is ideal. I am very much obliged to Dr. Jackson for bringing out the point that sutures hold much better through two thicknesses of tissue than through one thickness. I chose to include the capsule partly on that account, and also because a better result (that is, a more permanent result) was secured. The Worth suture is not an elaborate suture. It is an exceedingly simple suture. Simply a double knot and then one end of the suture is passed through the tendon a second time, posterior to the knot. I am sure that this is an important feature of this operation. In my endeavor to obtain a maximum effect it seemed to me that if I secured a second hold on the muscle it would be of value.

Dr. May referred to his patients whom I operated on at the last meeting of the Kansas state society. In the divergent case the effect was perfect. In the convergent case there was a slight under effect. This is due to the fact that I did not tenotomize the internal rectus. These cases illustrate the rule that it is much easier to secure a perfect result in divergent cases than in convergent cases.

I do not know how long the formalized pyoktanin catgut remains unabsorbed. It is stated that it remains for weeks, but I am inclined to believe that occasionally it is absorbed too early.

New Work in Old Fields.—In order that one may do new work it is not necessary to hunt for new fields. Remember that the Crookes tube was in the physical laboratories in all parts of the world in seventeen years, before anyone suspected that it was an *x*-ray tube. Roentgen was hunting for accidents of the kind, and he accidentally discovered that there were phenomena outside of the tube that demanded attention. It is only needful that one shall read and think, and the work of others, which may have been published half a century ago, will suggest something to you which it never suggested to anyone before, and which may occupy your attention for years. —F. E. Nipher, *Science*.

THE OCULAR CONJUGATE AND FUSION BRAIN CENTERS

ONLY TWO AXES OF OCULAR ROTATIONS, AND ONLY TWO PLANES OF REFERENCE *

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NASHVILLE, TENN.

In my investigations, some years ago, I saw the importance of finding a larger number of brain centers for the control of the ocular muscles than had been given in any list of these centers published up to that time. I not only found that there must be conjugate centers whose existence had never been announced, but that there must also be fusion centers. To the old list of conjugate centers I added six additional members; the sixth, the seventh, the eighth, the ninth, the tenth and the eleventh. The first, second, third, fourth and fifth conjugate centers had already been recognized, and Maddox had said "probably more." In addition to the six conjugate centers added to the original number, I found that there must be a fusion center for every individual extrinsic muscle, and also an individual center for each ciliary muscle and for each sphincter of the iris. In this paper I shall not refer again to the individual centers for each ciliary muscle and each sphincter of the iris, or to their conjugate centers; but only to the conjugate and individual centers pertaining to the extrinsic ocular muscles, nine of the former and twelve of the latter. I named the first eight of these fusion centers, right and left first basal centers, right and left second basal centers, right and left third basal centers, and right and left fourth basal centers. Notwithstanding it had been previously published that there was a fifth conjugate center, I found no evidence of the existence of right and left fifth basal centers, hence the skip from fourth to sixth. The remaining four I named right and left sixth and right and left seventh basal centers. To all of these basal centers, thus enumerated, I gave the general name of fusion centers, and declared them to be under the control of the fusion faculty of the mind. The purpose of this paper is to prove the existence of the nine conjugate centers connected with the extrinsic muscles of the eye, and the twelve fusion centers connected with these muscles. All of these are shown in Figure 1.

I did not recognize at that time that all ocular rotations, whether monocular or binocular, were effected around only two axes. At that time it was a matter of general knowledge that rotations in the horizontal plane were around a vertical fixed axis, and that the vertical rotations were around a horizontal fixed axis. I, at that time, found myself in agreement with the teaching of those who had preceded me, that every oblique rotation was around a fixed axis and that this axis was at right angles to the rotation plane; but this is not true.

In Figure 2 I represent the equator of the eye and the vertical and transverse axes lying in the plane of the equator, and I unhesitatingly declare that around these two axes are effected all oblique rotations, and that throughout such a rotation each of these two axes is itself in motion; there are no fixed axes for oblique rotations.

I was not alone in the thought that an oblique point in the upper field might be reached by a rotation, first around the vertical axis and then upward on the transverse axis of the eye, without any torsion of the eye on reaching the obliquely placed second point of view. I was at that time, as I am now, convinced that in oblique rotations there was no torsion and I concluded that the torsioning did not occur because of the contraction of the obliques for the purpose of preventing it. I still believe, and shall prove, in connection with the study of Figure 3, that oblique secondary points of view are reached without torsion, and that this is prevented by the obliques.

A few weeks ago the thought occurred to me that, if two simple rotations, the first around the vertical axis and the second around the transverse axis, could enable the eye to reach the second point of view obliquely placed, without torsioning, the same muscles could effect the rotation in an oblique plane by acting simultaneously on the eye, one rectus effecting the upward or downward and the other rectus the right or left movement, while an oblique stands guard against torsion.

I at once appealed to my muscle indicator for proof of the correctness of the thought. I saw at once that, while the elevators were rotating the eyes on their horizontal axes, the lateral recti could rotate the eyes at the same moment around the vertical axes, and that the result of this double rotation taking place simultaneously would be the same as if the eyes had moved first around one of these axes and then around the other. I elevated the isogonal circle of the muscle indicator, carrying the visual axes with it, but at the same time, by another force, I shifted the axes in the plane of the isogonal circle and reached a secondary point of view without torsioning. The two forces were independent of each other, and yet were acting in most perfect harmony. Thus it is that I shall be able to prove, as I proceed, that every oblique rotation is effected by the conjoined work of three conjugate centers and two fusion centers, the five acting on three pairs of muscles; that one of these pairs elevates or depresses the two eyes, another pair shifts the visual axes to the right or left, as the case may be, and the third pair prevents any rotation around the visual axes; that one fusion center acts on one lateral rectus, hindered by an oblique, while the other fusion center acts, as the case may be, on one superior or one inferior rectus, hindered by an oblique.

That the study of Figure 3, in proof of the existence of all of the nerve centers named above, may be made easier, I shall group the twelve ocular muscles into the nine pairs, and in connection with each pair, shall name the conjugate center in control.

1. The two superior recti, under the control of the first conjugate center, for elevating the visual axes.

2. The two inferior recti, under the control of the second conjugate center, for depressing the visual axes.

3. The two interni, under the control of the third conjugate center, for the converging of the visual axes.

4. The right externus and the left internus, under control of the fourth conjugate center, for effecting rotations to the right.

5. The left externus and the right internus, under control of the fifth conjugate center, for effecting rotations to the left.

6. The two superior obliques, under the control of the sixth conjugate center, called into action only when the rotation is directly down and in conjunction with the second conjugate center and the two inferior recti, the purpose being to prevent outward torsioning.

7. The two inferior obliques, under control of the seventh conjugate center, but called into action only when the rotation is directly up, and then in association with the first conjugate center and the superior recti, the purpose being to prevent torsioning inward.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

8. The superior oblique of the right eye and the inferior oblique of the left eye, under control of the eighth conjugate center and called into action only when rotations are obliquely up and to the right or down and to the left, to prevent torsioning to the right.

9. The superior oblique of the left eye and the inferior oblique of the right eye, under control of the ninth conjugate center, called into action only when the rotation is up and to the left, or down and to the right, to prevent torsioning to the left.

As to the fusion or basal centers, which could also be called the duction centers, the following is true:

The right and left first fusion centers belong, respectively, to the right and left superior recti. The right and left second fusion centers belong, respectively, to the right and left inferior recti. The right and left third fusion centers belong, respectively, to the right and left interni. The right and left fourth fusion centers belong, respectively, to the right and left externi. The right and left sixth fusion centers belong, respectively, to the right and left superior obliques. The right and left seventh fusion centers belong, respectively, to the right and left inferior obliques.

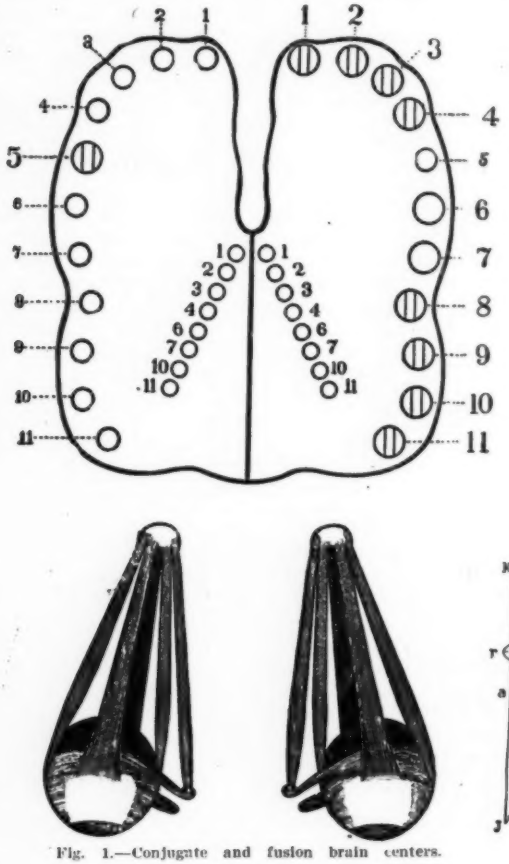

Fig. 1.—Conjugate and fusion brain centers.

Having named all of the conjugate and fusion centers and the pairs of muscles, or individual muscles, to which they respectively belong, it now remains for me to prove, by means of Figure 3, the actual existence of all these. The two planes to which I wish to call special attention are the plane *a-b-c-d*, which represents the horizontal fixed plane of the head extended; and the plane *g-h-i-j*, which represents the vertical fixed plane of the head. These two planes, at right angles to each other, have their line of intersection in *e-f*. Points in space located anywhere on this line are primary points of view, and are known to be on this line of intersection. The plane *a-b-c-d* is a plane of reference so far as objects above or below it are concerned. The plane *g-h-i-j* is a plane of reference for all objects either to the right or left of this plane.

If *f* be the point of fixation and the lateral recti muscles are normal, only the third conjugate center has acted and only the two interni have responded. If the eyes are esophoric, to prevent the visual axes crossing between *e* and *f*, the right and left fourth basal centers must each act on its individual externus. If the eyes are exophoric, the right and left third basal centers must be called into action to prevent the crossing of the visual axes at some point beyond *f*. The neuricity from the right and left third basal centers has supplemented the neuricity from the third conjugate center.

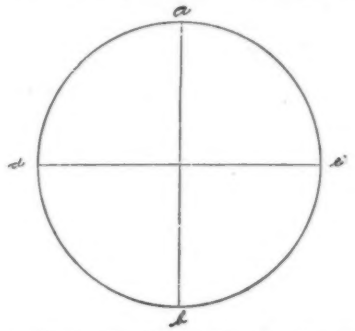

Fig. 2.—The equator and the two axes of rotations.

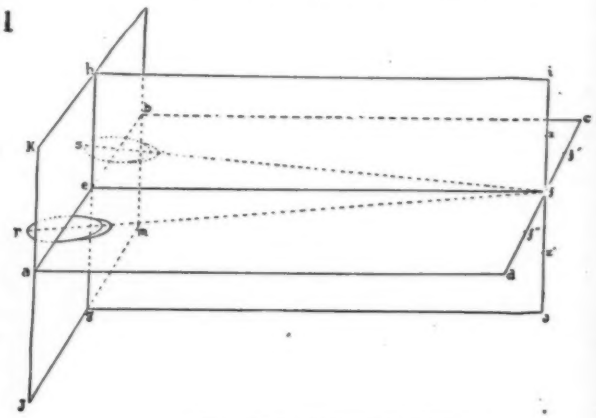

Fig. 3.—The two planes of reference.

If the eyes are to be rotated from *f* to *f″*, and are orthophoric, the third conjugate center will keep up the convergence and the fourth conjugate center alone, acting on the right externus and the left internus, will sweep the point of convergence from *f* to *f″*. If the eyes are esophoric the neuricity to the left internus would make the eye move faster and farther than the right externus would move its eye, if there were no supplementary supply for the latter muscle. This supplemental neuricity would come from the right fourth fusion center. If the eyes were exophoric, the neuricity from the fourth conjugate center would make the right eye

move faster and farther than would the left, unless supplemental neuricity should be sent to the left internus. This supplemental power would come from the left third basal center.

If the eyes were to be rotated from *f* to *f'*, and they are orthophoric, the convergence would be kept up by the third conjugate center, and the point of fixation would be carried from *f* to *f'* by neuricity from the fifth conjugate center only, acting equally on the left externus and the right internus. If the eyes to be thus rotated are esophoric, the neuricity from the fifth conjugate center to the right internus would make the right eye move further and faster than that sent to the left externus would turn the left eye. To prevent this lagging behind of the left eye, supplemental neuricity must come from the left fourth fusion center to the left externus. If such eyes were exophoric, the right eye would lag behind the left, unless supplemental neuricity should come from the right third basal center.

If the rotation is to be from *f* to *z*, the visual axes must be lifted by the two superior recti, and the vertical axes must be kept parallel by simultaneous action on the part of the inferior obliques. The impulse to the former muscle would come from the first conjugate center, and that to the latter would come from the seventh conjugate center. If the eyes to be thus rotated are orthophoric, no basal center would be called into action, but if the left eye should be hyperphoric, the neuricity from the first conjugate center would make that eye move upward faster than the right eye would go, unless the superior rectus of the right eye should receive supplemental neuricity from the right first basal center. Reversing the hyperphoria, the neuricity would have to come from the left first basal center in order to make that eye sweep in harmony with its fellow.

Rotations of these eyes from *f* to *z'*, if orthophoric, would be effected by neuricity from the second conjugate center, acting on the two inferior recti to pull the visual axes down, and, simultaneously, neuricity would come from the sixth conjugate center to the two superior obliques, and no basal center would be aroused into activity. But, if the right eye be cataphoric, supplemental neuricity would have to be sent from the left second basal center to the inferior rectus of the left eye, in order to make it keep pace with its fellow in rotation. In either of these vertical rotations the convergence would be effected by the third conjugate center.

In any rotation above the horizontal plane, whether cardinal or oblique, the first conjugate center must be active. In any rotation below the horizontal plane the second conjugate center must be active. In any rotation to the right of the vertical plane, whether in the horizontal plane or above or below it, the fourth conjugate center must be active. In any rotation to the left of the vertical plane, whether in, above or below the horizontal plane, the fifth conjugate center must be active. In a cardinal rotation above the horizontal plane, the two inferior obliques must act together. In a cardinal rotation below the horizontal plane, the two superior obliques must act together. In oblique rotations up and to the right and down and to the left, the eighth conjugate center must act on the superior oblique of the right eye and the inferior oblique of the left. In any oblique rotation up and to the left or down and to the right, the ninth conjugate center must act on the left superior and the right inferior obliques. These oblique rotations, even of orthophoric eyes, cannot take place under the influence of the conjugate centers alone, for the reason that one oblique will help one of the recti muscles of a pair and hinder the other, and *vice versa*, of each eye, thus making it necessary for one basal center for a rectus muscle belonging to one eye to be active to overcome the retarding influence of the oblique muscle, and the same is true of the retarded rectus muscle of the other eye. To illustrate: In the oblique rotation up and to the right, the right superior oblique would help the right externus, but would hinder the right superior rectus. The inferior oblique of the left eye would hinder the left internus, but would help the left superior rectus. The right first basal center, therefore, must help to stimulate the right superior rectus, and the left third basal center must help stimulate the left internus. The basal center for the oblique muscles counteract the insufficiency of these muscles, whether the eyes be at rest or in motion.

Without the fusion centers, duction would be impossible; therefore, they can very properly be called duction centers. Each of the right and left first basal centers would produce superduction. Each of the right and left second basal centers would produce subduction. The right and left third basal centers would produce adduction. The right and left fourth basal centers would produce abduction. The right and left sixth basal centers produce minus cycloduction and the right and left seventh basal centers produce plus cycloduction.

The conjugate centers are verting and converging centers, and are not the centers that stand guard when oblique rotations and heterophoric conditions would cause the visual axes and the horizontal retinal meridians to leave the plane of the primary isogonal circle.

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ABSTRACT OF DISCUSSION

DR. MELVILLE BLACK, Denver: We have listened to Dr. Savage for a good many years and he has told us many valuable truths. Once we get his ideas straightened out a little they are not at all difficult to follow. I believe we are greatly indebted to Dr. Savage for having attacked a theory of Helmholtz that seemed incontrovertible. I believe he has shown that Helmholtz was mistaken in certain of his teachings, and that it should be for a member of our Section to have positively demonstrated this fact is worthy of our commendation.

DR. HIRAM WOODS, Baltimore: Back as far as C. S. Bull's edition of Sollberg-Wells' text book there is an excellent discussion of the individual action of each eye muscle, together with the position in which the individual action of that muscle will put the eye, and how that position will affect binocular vision, and how some of the results of that individual action are compensated for or removed by other muscles. For instance, it is stated that in convergence the interni work together on the primary horizontal plane. In lateral motion the externus of one eye and the internus of the other act on the horizontal plane. In looking directly up the superior rectus pulls up and tilts the vertical meridian of the cornea inward, and that tilting is removed by the contraction of the inferior oblique. In looking down, on account of its oblique insertion, the inferior recti pull the eye down, tilting the vertical meridian of the cornea out, and the superior oblique overcomes that. Now with the exception of the introduction of these hypothetical centers and the term "cardinal rotation," wherein is Dr. Savage's teaching different from that taught us twenty-five years ago? Wells worked it out from the action of each individual muscle. Dr. Savage works out the identical thing and seems to me to assume these association centers. No one esteems Dr. Savage more than I for his scientific worth, but I cannot see that we are any further ahead in the understanding of muscular action for the assumption of these centers.

DR. G. C. SAVAGE, Nashville: This instrument, the muscle indicator, is built on the fundamental truth that the center of the macula is the posterior pole of the eye, and that the visual axis and all other visual lines go through the center of rotation. My faith in that proposition has been backed by me financially and otherwise. I offered, two years ago, a thousand dollars to any man who would name a single phase of an ocular muscle or any combination of ocular muscles, normal, abnormal or pathologic, that I could not show with this device. That the center of the macula is the posterior pole and that lines of direction are radii of retinal curvature prolonged, and that the judgment of the scientific world will be that at no very distant day, I have not the slightest doubt. I am sorry that there was not some discussion relative to the motions of the eye. I do not take it as an indication that there is nobody here who understands this part of physiologic optics. I am sure very many here do understand it, but I think they are willing for me to continue the fight in a lone-handed way until the victory finally comes. [The remainder of the discussion was a demonstration of the existence of the twelve fusion brain-centers, each connected with only a single ocular muscle, as set forth in the body of the paper.]

CHANGES OCCURRING IN THE REFRACTION OF CORRECTED AMETROPIC EYES *

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In undertaking this analysis of cases of ametropia, in which the error had been determined one or more times after the lapse of several years from the time of the first determination, and in which correcting glasses had been worn, I was actuated by a desire to see whether some unformulated belief which I possessed, and which I had nowhere seen expressed, would be borne out by facts. Further, as so little is said in text-books on ophthalmology and on refraction, and as some of the things which are said are not in accord with my unsubstantiated views I wished to clear my mind of the uncertainty. Quotations from some of the standard text-books and from the writing of several authorities will here be given that a comparison may be made between the views there expressed and conclusions reached as the result of this analysis. A perusal of the chapter on refraction in text-books on ophthalmology and of special treatises on refraction shows that with one or two exceptions the subject is entirely ignored.

The possibility of an eye with low hyperopic astigmatism becoming myopic was conclusively shown more than twenty years ago by Dr. William F. Norris and also by Dr. Samuel D. Risley. Dr. Risley laid particular stress on the rôle played by astigmatism in bringing about this change. As he expressed it: "without exception they passed from the too shallow hypermetropic eye-ball, over into the lengthened myopic eye, through the turnstile of astigmatism." This fact is so generally recognized as not to require confirmation at this time, yet many text-books make no mention of it. The "hypermetropia acquisita" of Donders is the only supposed change in the refraction of the eye of which note is generally taken. MacNamara, quoted by Randall, urges that young hyperopes, even those with absolute hyperopia, should not be given correcting glasses or even under-correcting lenses for constant wear, asserting that the normal development of the eye, whereby the hyperopia would be outgrown, might thus be interfered with, and the defect rendered permanent. Randall, having had the same thought, and having acted on it, did not observe a decrease in the hyperopia in a single instance. Nettleship states that hyperopia always dates from birth and does not afterward increase, except slightly in old age; but it may diminish and give place to myopia by elongation of the eye.

Jackson sees in the occurrence of astigmatism in 41.8 per cent. of myopes and only 17.2 per cent. of hyperopes, a connection between astigmatism and myopia. He further states that there is little reason to doubt the correctness of the common belief that the majority of cases of astigmatism remain the same throughout life. He records eighteen cases of progressive hyperopic astigmatism. In all, there was an increase in the degree of the hyperopic astigmatism. He is of the opinion that the frequency of these cases would be about 2 per cent. of all cases seeking relief on account of anomalies of refraction. The cases in which, after the lapse of an equal length of time, the use of a mydriatic has shown no change in the amount of the astigmatism outnumbered them very decidedly, and cases of mixed and myopic astigmatism are relatively, though not absolutely, more frequently progressive. He has encountered no case of regressive astigmatism—none in which the astigmatism had diminished so much as ½ D., though it is not improbable that such cases occur. In most of the cases there was an increase in the hyperopia in all of the meridians. In six of the cases there was actual diminution of the hyperopia in one of the principal meridians of one or both eyes. He has not found that the liability to change in the amount of astigmatism is confined to any one particular period of life, though such changes may be more frequent in early life.

Emerson also reported a case of progressive hyperopic astigmatism.

Theobald has recorded a case in which there occurred an increase of hyperopia with an increase of astigmatism, a case of increase of myopia with an increase of astigmatism, and a case of myopic astigmatism becoming mixed astigmatism. He believes such cases to be probably of infrequent occurrence. Randall doubts the occurrence of hyperopia acquisita of advanced life in the sense referred to by Donder.

According to Thorington, astigmatism may develop from any disease or injury that will cause a lengthening, shortening, or inequality in one or more of the meridians of the cornea or lens. The same author refers to the development of compound myopic astigmatism from low degrees of compound hyperopic astigmatism and in this connection states that it is well known that hyperopic astigmatism is a congenital defect.

Alger refers to the development of myopia from hyperopia and also the acquired hyperopia of old age.

Duane is the only author whose writings contain any extended reference to the phase of refraction with which this paper has in particular to do. Regarding astigmatism, he says: "Once developed, it remains, on the whole, practically stationary during childhood, youth and early manhood. Changes do take place in it from time to time, but they are inconstant and usually slight, and there is no special rule governing the way in which they develop. After middle life, however, there is a tendency for astigmatism to change its character. Astigmatism with the rule tends to become less, or is sometimes converted into astigmatism against the rule, and astigmatism against the rule often develops where no astigmatism existed before, so that in old age astigmatism against the rule is the most common variety."

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

An analysis of the changes of refraction occurring in 550 eyes was made. The eyes were divided into three groups representing age periods at which changes are most likely to occur, namely: patients under 20, between 20 and 45, and over 45. As the study progressed, further subgroups seemed desirable and were made. One hundred and fifty-five patients (28 per cent.) came under the first group, 322 (55 per cent.) under the second group and ninety-two (17 per cent.) under the third group. In 222 over ten years (in many instances more than fifteen years) had elapsed between the first and last refraction tests, in 320 between five and ten years had elapsed. The cases were all from private records. With few exceptions in persons under 50 years of age all the tests were made under cycloplegia, usually secured by the use of atropin; in between fifty and fifty-five either no cycloplegic or homatropin was used. In most cases the glasses had been worn constantly.

No eyes were included which showed incipient cataract, glaucoma, present or past evidences of inflammation either in the anterior or posterior segment of the globe or in which a developing pterygium or a chalazion was present. This was done because it was not the purpose to show the effects of inflammation or degenerative processes on the refraction of the eye.

The class of patients were those usually met in private practice.

The accompanying table summarizes the analysis:

	Number of Cases.	Percentage of All M or H Eyes.	Percentage of H or M Eyes Which Underwent a Change.	Percentage of HaH or MaM Eyes Which Underwent a Change.	Percentage Under 20 Years of Age.	Percentage from 20 to 45 Years of Age.	Percentage Over 45 Years of Age.
Increase of H with increase of As...	36	9	12	16	17	53	30
Increase of H with decrease of As...	44	11	15	19	18	60	22
Decrease of H with increase of As...	116	30	40	51	36	57	7
Decrease of H with decrease of As...	32	8	11	14	19	57	25
Increase of M with increase of As...	16	24	31	44	37	56	6
Increase of M with decrease of As...	9	14	17	26	22	67	11
Decrease of M with increase of As...	8	12	15	23	37	63	0
Decrease of M with decrease of As...	2	3	4	6	0	100	0
Increase of H	40	10	14	..	22	38	40
Decrease of H	24	6	8	..	30	45	25
Increase of M	16	24	31	..	7	93	0
Decrease of M	1	2	2	..	0	0	100
HaH no change	51	13	..	..	12	78	9
MaM no change	11	17	..	..	18	27	54
H no change	46	12	..	..	26	54	20
M no change	3	5	..	..	0	100	0
HAs or low HaH or MaM becoming MAs+HAs	22	..	..	..	..	..	..
Various other transitions	64	..	..	..	..	..	..
HaH with change in only one element	32	..	..	..	..	..	..
MAs+HAs with change in M or H meridian	28	..	..	..	..	..	..
Development of As in H	30	..	..	..	..	..	..
Development of As in M	1	..	..	..	..	..	..
Loss of total As	9	..	..	..	..	..	..

Summary: Total H eyes, 389; total HaH eyes, 279; total M eyes, 46; total MaM eyes, 66. Eighty per cent. of the eyes tabulated underwent a change either in the static refraction or in the amount of astigmatism.

The cases were analyzed to show: no change in HaH,[1] no change in MaM, no change in HAs; no change in MAs, no change in M or H; increase in static refraction M and H; increase in the static refraction with increase or decrease in the astigmatism; decrease in the static refraction with an increase or decrease in the astigmatism; MAs+HAs analyzed to show changes occurring in the principal meridians; low-grade ametropia going over into MAs+HAs, and all possible transitional forms; development of astigmatism where no astigmatism had before existed, loss of total astigmatism.

In order to avoid confusion or misunderstanding, in the summary the changes in the static refraction and in the astigmatism in compound astigmatic eyes have been classified according to the nature of the ametropia.

1. Abbreviations: M=myopia; H=hyperopia; HAs=simple hyperopic astigmatism; MAs=simple myopic astigmatism; HaH=compound hyperopic astigmatism; MaM=compound myopic astigmatism; MAs+HAs=mixed astigmatism.

CHANGES IN COMPOUND ASTIGMATIC EYES

The largest percentage of change in HaH occurred in the group in which there is a decrease in the H with an increase of As. This took place in 51 per cent. of all HaH showing a change in the amount of H or As; and in 30 per cent. of all hyperopic eyes tabulated. The second largest percentage of change occurred in HaH in the group in which there is an increase in the H with a decrease in the As. This took place in 19 per cent. of all HaH eyes showing a change in the amount of H or As; and in 11 per cent. of all hyperopic eyes tabulated. In MaM, the largest percentage of change occurred in the group in which there is an increase in the M with an increase in the As. This took place in 44 per cent. of all MaM eyes showing a change in the amount of M or As; and in 24 per cent. of all myopic eyes tabulated. The second largest percentage of change in MaM eyes occurred in the group in which there is an increase in the M, with a decrease of the As. This took place in 26 per cent. of all MaM eyes showing a change in the amount of M or As.

Considering these groups in the sense of a change in the static refraction it will be seen that in eyes with a compound astigmatic ametropia, there was an increase in the static refraction with an increase in the astigmatism in 48 per cent.

AGE PERIOD AT WHICH CHANGE OCCURRED

Fifty-seven per cent. of the changes in HaH occurred between the age period of from 20 to 45 years; 23 per cent. under 20 years, and 20 per cent. over 45 years. In MaM 71 per cent. occurred between 20 and 45, 24 per cent. under 20, and 5 per cent. over 45. While these figures show that far the greatest number of changes occurred in the age period of from 20 to 45 years, they are probably of no significance, as the same preponderance of numbers is seen in this same period in the cases of HaH which underwent no change. They show, however, that changes in M are of infrequent occurrence after the forty-fifth year, and that they occur in H with much greater frequency, but still with much less frequency than before the forty-fifth year.

Of the total number (279) of HaH, 228, or 80 per cent., underwent a change in the relation between the amount of H and the amount of the As; and of the forty-six MaM eyes thirty-five, or 76 per cent., underwent a similar change. This would indicate that there is no greater tendency for MaM to change than there is for HaH to change. Of the twenty-eight cases of MAs+HAs, twenty-five, or 89 per cent., underwent a change in the relation between the amount of H and M in the principal meridians. Of the thirty-two cases of HAs twenty-nine, or 90 per cent., underwent a change in the refraction of the principal meridians. Of the ten cases of MAs ten, or 100 per cent., underwent a change in the principal meridians.

This shows conclusively that simple and mixed astigmatism are the least stable of the ametropic refractive states. In MAs+HAs the eyes in which there was an

increase in the M with a decrease in the H; an increase of the H with a decrease of the M; an increase of the M with an increase of H, and an increase of M with no change in H, were almost evenly divided. Twenty-two eyes with a low compound As or a simple As went over into mixed As and *vice versa*, nine eyes with MAs+HAs became MaM, HaH, MAs.

CHANGES IN HYPEROPIA

Of 126 hyperopic eyes, in patients over 45 years of age in which the average age at which the final test was made was 53 years, in fifty-one, or 40 per cent., there was a decrease in the H, in forty-one, or 33 per cent., there was an increase in the H, and in thirty-one, or 27 per cent., there was no change. Because of these variations from the generally accepted views a second series of fifty-five eyes, in which the average age at which the first test was made was 55 years and the final test 63 years, was analyzed. In 45 per cent. there was an increase in the H, in 27 per cent. there was a decrease, and in 27 per cent. there was no change. Here, again, we see that the eyes in which no increase occurred overbalance those in which an increase occurred. While these figures are insufficient in number to warrant a dogmatic statement there does not seem to be any greater tendency at these age periods for the H to increase than for it either to remain stationary or decrease.

The average amount of increase of H equaled ⅜ D. The average amount of decrease in H equaled ⅝ D. In the group showing an increase in H, one eye in which a rather rapid increase of 3 D. occurred was omitted, and in the group in which a decrease occurred two eyes, in one of which the change equaled 2 D. and the other 6 D., both in the same individual, were omitted, as the change occurred rather rapidly and it was considered probable that it was due to a pathologic cause. If they be included then the average increase was ½ D., and the average decrease 1 D.

Including in the group "H no change" cases of HaH in which no change whatever took place, and cases of H in which no change occurred, there were ninety-seven cases, or 25 per cent. of all of the hyperopic eyes tabulated. Of the pure cases of H there were twenty-four, of these four, or 16 per cent., underwent no change, twelve, or 50 per cent., showed an increase, and eight, or 33 per cent., underwent a decrease.

CHANGES IN MYOPIA

Included in the group "M no change" are the same class eyes as were included under the same heading for H. Of these there were fourteen. Of the pure cases of M there were four. All of the latter underwent an increase.

These figures indicate that H is more stable than M, and that whereas in M there is invariably an increase in H there may be either an increase or a decrease.

ACQUIRED ASTIGMATISM

Astigmatism was acquired in thirty-one eyes. In all but one instance, the eyes acquiring the astigmatism were hyperopic, or 8 per cent. of the hyperopic eyes. Sixteen, or 51 per cent., of the individuals were under 45 years of age. The average age in this group at which the astigmatism was first present was 32 years. In seven, or 44 per cent., the axis of the astigmatism was against the rule; in seven, or 44 per cent., it was with the rule; and in two midway between 90° and 180°. The average amount of astigmatism equaled a little less than ½ D. In fifteen, or 49 per cent., the individuals were 45 years of age or over. In this group the average age at the time the astigmatism was discovered was 53 years. All the individuals were hyperopic. In thirteen, or 87 per cent., the axis was against the rule. The average amount of As equaled a little less than ½ D. These figures indicate that astigmatism may develop at any decade and occurs with equal frequency in the third as in the fifth decade, and that after the forty-fifth year; in the majority of cases the axis was against the rule, while before this period the axis was as often with as against the rule.

LOSS OF ASTIGMATISM

The total astigmatism was lost in nine eyes; in four, or 44 per cent., in individuals under 45 years of age. In this group, the average age at which the loss was determined was 36 years. All the eyes were hyperopic. In three, or 75 per cent., the astigmatism had been with the rule. In five, or 56 per cent., the individuals were over 45 years of age. In this group, the average age at which the loss of astigmatism was discovered was 53 years. All were hyperopic. In three, or 60 per cent., the axis was with the rule, and in two, or 40 per cent., it was against the rule. The average amount of the astigmatism lost was ½ D.

These figures indicate that the total astigmatism probably may be lost in any decade, but that this occurs most frequently in the later decades and possibly represents a transitional stage to astigmatism against the rule, as in 60 per cent. the axis of the astigmatism which had existed was with the rule.

CHANGES IN MIXED ASTIGMATISM

Of twenty-eight cases of mixed astigmatism, twenty-five, or 89 per cent., underwent a change in one or both elements, and in three, or 11 per cent., no change occurred. There was an increase of M with a decrease of H in six eyes; an increase of H with a decrease of M in seven eyes; an increase in both M and H in six cases; and an increase of M with no change in H in six. The tendency is for both meridians to change, but the most frequent change is for the myopic meridian to increase; but the most frequently associated change was an increase in the hyperopic meridian associated with a decrease in the myopic meridian.

CONCLUSIONS

1. Ametropia tends to change in degree even when the error is carefully and repeatedly corrected and the glasses worn constantly.
2. Almost every conceivable change may occur.
3. The tendency is in the direction of an increase in the static refraction with an increase in the astigmatism.
4. In compound hyperopic astigmatism the most frequent change is a decrease of the hyperopia with an increase in the astigmatism.
5. In compound myopic astigmatism the most frequent change is an increase in the myopia with an increase in the astigmatism.
6. There is no greater tendency for compound myopic astigmatism to change than there is for compound hyperopic astigmatism to change.
7. Simple myopia (rare) is never a stable condition, it almost invariably increases in amount.
8. Simple myopic astigmatism is the least, and simple hyperopic astigmatism the next least stable of astigmatic errors.
9. Simple hyperopia sometimes remains constant, but is subject to undergo both an increase and decrease.

10. In compound astigmatism the static refraction may change without a change taking place in the astigmatism and *vice versa*.

11. In mixed astigmatism, the myopic meridian most frequently changes and shows an increase, although an increase of the hyperopic meridian with a decrease in the myopic meridian in the same eye probably occurs with the most frequency.

12. Astigmatism is often acquired in hyperopic eyes, and as frequently in the third as in the fifth decade. Before the forty-fifth year the axis of the acquired astigmatism is as frequently with as against the rule, but after the forty-fifth year it is against the rule in 85 per cent. of patients.

13. The total astigmatism may be lost probably in any decade, but more commonly in the later decades and at this time probably represents a transitional stage to an astigmatism against the rule.

14. A change in the axis of astigmatism occurs in about 50 per cent. of the cases.

15. The changes in the refraction occur with most frequency in the age period of from 20 to 45 years.

16. After the forty-fifth year changes in the amount of hyperopia in compound hyperopic astigmatism occur much more frequently than do similar changes in compound myopic astigmatism.

17. There is no greater tendency toward an increase in hyperopia between the fifty-fifth and sixty-fifth years than between the forty-fifth and fifty-fifth years.

1819 Spruce Street.

ABSTRACT OF DISCUSSION

DR. W. E. LAMBERT, New York: In order to discuss intelligently such a paper as Dr. Zentmayer has given us, which is one of statistics, one should have consulted his own records and ascertained the facts about this condition into which Dr. Zentmayer has gone. The analysis of the cases which he has made, with the results, means a great deal of labor, and the facts which he has ascertained by this analysis bring to us some very useful information. I think I am safe in disagreeing with him on one point. My understanding is that the decrease in the hyperopia in young people is a natural condition following the development of the eye and, of course, we all agree that in most cases myopia, especially from 12 to 20 years, is liable to increase, and we must take precautions. My impression is that the astigmatism is very stable. In a large number of cases that I have examined from time to time I find it remaining practically the same. The development, or the manifestation of astigmatism late in life is compatible with that, and I think it is unfortunate that Dr. Zentmayer had not made corneal astigmatism separate from the total refraction, because it is possible that the development of astigmatism late in life may be due to either one of two conditions; that is to say, the corneal astigmatism may have existed previously and may not have manifested itself, and as the lens loses its elasticity this astigmatism which had existed before in the curvature of the cornea becomes manifest. I am sorry, therefore, that in the examination of these cases the readings of the ophthalmometer were not included, showing us whether the corneal astigmatism had remained constant or had changed. Dr. Zentmayer has stated that he does not refer to any cases in which pathologic conditions had produced changes in the refractive condition, but I am going to mention two peculiar cases. In one case I was laughed at by one of my colleagues and told that my observations were incorrect, etc. I refer to the enormous amount of astigmatism that may be produced by a chalazion. Shortly afterward I had a similar case. The astigmatism in both disappeared after curing the chalazion. Another rather peculiar development of astigmatism amounting to 1 D was in a young boy. He had had a perforating ulcer of the cornea with resulting anterior synechia, but the pupil was not much distorted. The advice was to leave it alone. After two or three years he began to develop quite a large amount of astigmatism, which increased, undoubtedly owing to contraction of the iris. An iridectomy was performed subsequently and the astigmatism entirely disappeared.

DR. C. D. WESCOTT, Chicago: As I looked over the paper before coming to the meeting I wished very much that I might have read it before I began doing refraction work. In my pupilage I was given some hard-and-fast rules and I failed from my reading to learn many of the things Dr. Zentmayer has pointed out to-day. So far as I can say without going over my records I can endorse all that he has said. I feel confident of the correctness of his views. I also have observed the change of astigmatism from the pressure of a chalazion on the lid. You have all noticed the change in the reading of the ophthalmometer in patients who squint and half close the lids during the examination. These are common observations. In a quotation from Dr. Jackson I was surprised to notice that he tells us that only 17.2 per cent. of hyperopes are astigmatic; I felt confident that that was not according to my experience and since I came here my assistant has run over the last 100 refraction cases in my records. In those 200 eyes there were ten with simple hyperopia, 107 with combined hyperopia and astigmatism; there were six eyes in which there was pure myopia and twenty-nine in which there was combined myopia and astigmatism.

DR. G. C. SAVAGE, Nashville: There are three classes of patients to whom I always say that they will probably have to have a change of lenses in a longer or shorter time. One class is the astigmatic, whether hyperopic, myopic or mixed. Another class is the myopic patient, for we all know that myopia is a thing that increases in a large percentage of cases. The remaining class is the presbyopic. If I have a patient whose corneal astigmatism corresponds with the total astigmatism as shown by means of the lens, then I say they will not have to change the astigmatic lens. In my own case the corneal astigmatism was the same twenty-two years ago as it is to-day, but the total astigmatism was much less. The total astigmatism finally became the same as the corneal. My explanation of that is this: The plane of the lens should be parallel with the tangent of the cornea at its center. If the cornea has its tangent parallel with the lens and there is no astigmatism, then there will be no total astigmatism. If the cornea measures 1 D of astigmatism and there is no total astigmatism shown by retinoscopy or lenses then I know that the lens has been tilted so as to produce 1 D of astigmatism. I know further that the lens is not always going to be tilted that way. I know that there is no known agent in the materia medica that will untilt the lens. The tilting in my two eyes, when I was a boy, was enough to produce 2.5 D of lenticular astigmatism for neutralizing the corneal error. The astigmatism began to unfold itself as I grew older, and as it unfolded I wore increasingly strong cylinders until the total astigmatism became equal to the corneal astigmatism. This lens-tilting must be done by Bowman's muscle. This muscle consists of radiating fibers which are under the control of the sympathetic nervous system—the superior cervical sympathetic, probably. We do not know of any agent that will control Bowman's muscle. As we grow older the muscle becomes tired and the lens untilts. I am satisfied that there is dynamic tilting of the lens inside of the eye when the corneal astigmatism and the total refraction do not correspond. Does not the hardening of the lens as we grow older have something to do with the increase in refraction, calling for a stronger myopic or a weaker hyperopic lens? We know that the elasticity of the lens goes after a while and we have to give presbyopic lenses of increasing power to correct the advancing presbyopia.

DR. MARK D. STEVENSON, Akron, O.: This work of Dr. Zentmayer's is not an attempt at an explanation, but an analysis of the changes found in the cases, and is of great importance Since in Philadelphia they use atropin we can practically eliminate the action of the ciliary muscle or anything but the real astigmatism. In my own cases of long standing I formerly used homatropin, but I have now also come to the atropin standard in younger people. One thing that struck me

as different from my own results, as I recall them, is the statement that there is not a greater tendency for compound myopic astigmatism to change than of compound hyperopic astigmatism.

DR. HIRAM WOODS, Baltimore: The general statements of Dr. Zentmayer's paper are undoubtedly correct. We do get changes in the axes of astigmatism. At the same time there is one thing that Dr. Risley pointed out some years ago and it is just as well to bear it in mind: Nearly all of the changes are in the direction of a change in refraction. Dr. Risley suggested in his paper that astigmatism is the turnstile of progressive myopia and he insisted that we have cycloplegia before we draw conclusions as to what the static refraction is; in other words, the mere use of atropin or scopolamin, or whatever you choose, with dilated pupil and inability to read, is not cycloplegia necessarily, and when you contrast one result with another you want to know that you have complete cycloplegia. Dr. Risley lays this down emphatically with reference to myopic astigmatism. I recollect a case recently in a child who had a myopia of 1 D. at her first visit. I had not seen her for two years when she came in with an apparent increase of the myopia to 3 D. Atropin was used the first day and the myopia lessened, steadily decreasing for three or four days until at the end of a week there was only about 50 per cent. of the apparent increase on the first day. I would not have had any way of knowing that except by the prolonged use of the cycloplegia. I am quite confident that in increasing myopia in young people the first day or two the cycloplegic does not always give complete relaxation.

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind.: When some men speak of a mydriatic they mean a cycloplegic. It should be remembered that there is a great difference between a cycloplegic and a mydriatic. A cycloplegic is always a mydriatic, but a mydriatic is not always a cycloplegic. I am a firm believer in the use of a cycloplegic that thoroughly paralyzes the accommodation. I have noticed a change in the refraction of patients examined under homatropin three or four years previously, and under the impression that the cycloplegia was complete, I concluded that the change in the refraction was due to changes in the shape of the eye itself or in the shape of the lens. Later when hyoscin or atropin was used, with still different results, I became convinced that the changes noted were not always due to changes in the shape of the eye or the lens, but rather to failure in previous instances to secure complete cycloplegia. The practical point of this paper, to my mind, is the demonstration of the fact that there is a change in the eye itself, and that the change cannot be attributed to faulty cycloplegia. It also emphasizes a point which should not be forgotten, and that is that we are not warranted in supposing that patients refracted by others have been refracted improperly because we obtained different results several years later.

DR. WILLIAM ZENTMAYER, Philadelphia: Most of the discussion that has taken place has been based on just what led me to analyze my cases, just from preconceived ideas, without any statistical results to base them on. I was perfectly familiar with the astigmatism produced by a chalazion. My own case is one which was refracted under atropin twenty-five years ago and had one-half diopter of hyperopia and one-half diopter of astigmatism. I am now using an axis of 95 in one eye and 100 in the other. To show how uncertain after all any prognosis in regard to refractive changes must be, the day before I left Philadelphia I saw a patient whom I had refracted twenty years ago who had a low hyperopic astigmatism in one eye and a low myopic astigmatism in the other eye. She came back at the end of twenty years for presbyopia. I went over the eyes with the result that the patient is now wearing the same glasses she wore twenty years ago. In regard to the theory of these changes I left that alone; I simply wanted to present a statistical paper.

As. Dr. Woods says, we have no very definite way of knowing whether we have absolute cycloplegia, but I believe the way I use my atropin is pretty certain to give complete cycloplegia. I use 1 per cent. solution and instil 2 drops into each eye two days before the test. I almost invariably test my patients three times. Of course, if the first two tests concur I do not test them again. That is practically five days of atropin cycloplegia. In regard to the use of the ophthalmometer it was first done before the instrument was used and I could not make a complete study in that way.

DR. SAVAGE: When was the cornea first measured with the ophthalmometer?

DR. ZENTMAYER: Twenty-five years ago.

DR. SAVAGE: Did it differ much from what it is now in the corneal astigmatism?

DR. ZENTMAYER: It has apparently changed in my case.

THE EFFECT OF THE INGESTION OF ALCOHOL ON THE RESULT OF THE COMPLEMENT FIXATION TEST IN SYPHILIS

A PRELIMINARY NOTE *

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In this preliminary note we desire to place on record certain observations regarding the effect of the ingestion of alcohol on the Wassermann test. We have found that alcohol, when taken in considerable quantities, possesses the power of rendering the strongest positive serum negative, and that this negative reaction persists for a few hours to several days. These observations are of both practical and scientific interest and we hope, in a later contribution, to discuss them more at length.

The discovery that alcohol possesses this property was made during routine tests of the blood of a patient who had received salvarsan, and has since been confirmed in eight other cases.

The technic used in making the tests has been that usually employed in this laboratory, following closely the modification of the Wassermann test recommended by Noguchi, with the exception that an alcoholic extract of fetal luetic liver is used as antigen and the serums to be tested are inactivated before use.

As the case in which this phenomenon was first noted is of special interest in this connection it will be discussed in detail, while the results in the other cases are shown in the accompanying table. In this report the sign ++ indicates absolute inhibition of hemolysis; + over 50 per cent. of inhibition; and +— anything below 50 per cent. of inhibition.

CASE 1. Male, 41 years of age. Infected in 1904. Now has palmar lesions. Feb. 25, 1911, 0.5 gm. of salvarsan was administered intravenously, the Wassermann test before administration giving a plus reaction. Between this date and April 7, 1911, his blood was tested five times, the reaction four times being double-plus, and the last test, on April 7, being plus. April 8 his blood was again tested and was found to be negative. This result was unusual and on inquiry we learned that on the night of April 7, he had drank about 700 c.c. of Munich beer. His blood was tested again on April 12, and gave a double-plus reaction. Believing that the beer might have had something to do with the sudden disappearance of the reaction in this case, we asked him to repeat the beer on the night of April 14, which he did and on the morning of April 15 the reaction was again negative. On the 17th it had become plus and on the 22d again double-plus.

These results indicating that the disappearance of the reaction was due to the ingestion of alcohol we decided to repeat the experiments on other cases and the table which follows gives the results we obtained in nine luetic

* From the Bacteriologic Laboratories of the Army Medical School, Washington, D. C.
* Published with permission of the Surgeon-General, U. S. Army.

patients, who, before the administration of alcohol, gave a double-plus Wassermann reaction.

Of the nine cases included in the table three were in the secondary and six in the tertiary stage of the disease. The quantity of alcohol administered varied somewhat, but in every case the reaction disappeared after its administration. The smallest amount of alcohol administered was 180 c.c. of whisky containing approximately 90 c.c. of alcohol and in most of the cases the blood was tested one hour before the administration of alcohol was begun as well as afterward. The study of the table will disclose the fact that in five of the cases the reaction was negative one hour after the last dose of alcohol had been given, and that in all the cases the reaction remained negative for several hours and in some of them for a much longer time. Thus in Cases 4, 5 and 6, the reaction remained negative for over twenty-four hours and in Case 9 for three days. Two of the

TABLE ILLUSTRATING THE EFFECT OF THE INGESTION OF ALCOHOL ON THE COMPLEMENT FIXATION TEST IN LUES

Case No.	Stage of Disease	Reaction Before Alcohol Date	Alcohol Given Date	Alcohol Given Amount	Dates and Results of Tests After Administration of Alcohol. Date	Time	Result	Remarks
1	3	First test + April 1, 1911. Second test ++ Apr. 12, 1911.	4/ 7/11	About 700 c.c. Munich beer in evening.	4/ 8	9:00 a. m.	—	0.5 gm. salvarsan Feb. 24, 1911
			4/14/11	700 c.c. same beer between 10 p. m. and 12 midnight.	4/12	9:00 a. m.	++	
					4/15	9:00 a. m.	—	
					4/17	9:00 a. m.	+	
					4/22	9:00 a. m.	++	
2	2	++ May 19, 1911.	5/20/11	90 c.c. of 95 per cent. alcohol by mouth from 7 a. m. to 7 p. m.	5/20	7:30 p. m.	+	No salvarsan.
					5/21	10:00 a. m.	—	
					5/22	10:00 a. m.	+—	
					5/23	10:00 a. m.	++	
					5/24	10:00 a. m.	++	
3	3	++ May 20, 1911, one hour before alcohol.	5/29/11	240 c.c. whiskey between 10 a. m. and 5 p. m.	5/29	6:00 p. m.	+	No salvarsan.
					5/30	6:00 a. m.	—	
					5/31	10:00 a. m.	+	
					6/ 1	10:00 a. m.	++	
					6/ 2	10:00 a. m.	++	
4	3	++ June 3,'11, one hour before alcohol.	6/ 3/11	240 c.c. of whiskey between 10 a. m. and 6 p. m.	6/ 3	8:00 p. m.	—	No salvarsan.
					6/ 4	7:00 a. m.	—	
					6/ 5	10:00 a. m.	+	
					6/ 6	10:00 a. m.	++	
5	2	++ June 4,'11, day before alcohol.	6/ 5/11	180 c.c. whiskey between 9 a. m. and 6 p. m.	6/ 5	8:20 p. m.	—	
					6/ 6	8:00 a. m.	—	No salvarsan.
					6/ 7	8:00 a. m.	++	
					6/ 8	8:00 a. m.	++	
6	2	++ June 22, 1911, one hour before alcohol.	6/22/11	240 c.c. of whiskey between 9 a. m. and 7 p. m.	6/23	9:00 a. m.	—	
					6/23	8:00 p. m.	—	0.6 gm. salvarsan, June 19, intramuscular.
					6/24	9:00 a. m.	+—	
					6/25	9:00 a. m.	++	
					6/26	9:00 a. m.	++	
7	3	++ June 29, 1911, one hour before alcohol.	6/29/11	240 c.c. of whiskey between 10 a. m. and 5 p. m.	6/29	6:00 p. m.	+—	
					6/30	6:00 a. m.	—	No salvarsan.
					7/ 1	6:00 a. m.	+	
					7/ 2	6:00 a. m.	++	
					7/ 3	6:00 a. m.	++	
8	3	++ July 7,'11, one hour before alcohol.	7/ 7/11	240 c.c. of whiskey between 12 m. and 7 p. m.	7/ 7	8:00 p. m.	—	
					7/ 8	1:00 p. m.	—	
					7/ 9	1:00 p. m.	++	No salvarsan.
					7/10	1:00 p. m.	++	
9	3	++ July 7,'11, one hour before alcohol.	7/ 7/11	240 c.c. whiskey between 12 m. and 7 p. m.	7/ 8	1:00 p. m.	—	
					7/ 9	1:00 p. m.	—	
					7/10	1:00 p. m.	—	
					7/11	1:00 p. m.	+—	No salvarsan.
					7/12	1:00 p. m.	+	
					7/13	1:00 p. m.	++	
					7/14	1:00 p. m.	++	

fact that a much larger quantity of alcohol is necessary to produce hemolysis than could possibly be present in the serum. For example, we have found that it requires at least 0.15 c.c. of absolute alcohol to produce complete hemolysis of 1 c.c. of a 1 per cent. suspension of human red corpuscles, within the standard time, whereas only 0.08 c.c. of the patient's serum is used in making the complement fixation test in this laboratory. It is thus evident that if the serum were absolute alcohol the quantity used could not produce hemolysis.

It is evident that in syphilis some substance is present in the blood-serum which reacts with a suitable antigen and that this substance depends on the presence of the spirochetes, for when these disappear in experimental animals the reaction also disappears. This specific substance may be viewed as either an antibody produced by the reaction of the tissues to the living or dead spirochetes or as a chemical substance, not in the nature of an antibody, which results from the decomposition of the tissues by the spirochetes, or is derived from the parasites. The action of alcohol demonstrated above could be used as an argument in favor of the former view—the drug causing an inhibition or destruction of the antibody which unites with the antigen in the complement fixation test, but it could also be used as an equally strong argument in favor of the latter view. It may well be, however, that the antibody concerned in the Wassermann reaction is of a protective nature and that its neutralization or destruction by alcohol explains the injurious effect of this drug on luetics, for it is well known that in patients suffering from this disease the symptoms are greatly intensified by the use of alcohol.

There has been some work accomplished demonstrating that alcohol reduces the amount of opsonins and agglutinins in human blood-serum, and further research

patients had received salvarsan before the alcohol was administered, but in one case this was given so long before that it could have had no effect on the reaction, while in the other the fact that the reaction became double-plus again, after becoming negative from the alcohol administered, indicates that the salvarsan had nothing to do with its disappearance.

We have instituted some experiments on luetic rabbits with the intention of working out the exact time of disappearance of the complement fixation test after the administration of alcohol and its reappearance, and the amount of the drug necessary to produce this result, and we hope to report on these experiments later.

At the present time it is impossible for us to explain this effect of the ingestion of alcohol on the complement fixation test. That it is not due to the actual presence of alcohol in the blood-serum tested, is evident from the

may show that this drug has a profound effect on the protective antibodies which may be produced during the progress of syphilis or of other diseases.

From the practical standpoint these observations demonstrate that no dependence can be placed on a negative Wassermann reaction in individuals who have, within twenty-four hours of the collection of the blood, ingested considerable amounts of alcohol, while in some instances the drug may render the reaction negative for as long as three days. We have not, as yet, tried the effect of alcohol in smaller doses on cases giving a plus or plus-minus reaction, but it is probable that the drug will be found to have a still more decided effect on weaker reactions, and it is certain that with the amounts used in the experiments, the strongest positive serum would give a negative result. Careful inquiry, therefore, should be made regarding recent use of alcohol before collecting serums for the complement fixation test in lues.

We desire to express our thanks to Major Walter D. Webb, Medical Corps, U. S. A., retired, and to Captain Harold W. Jones, Medical Corps, U. S. A., for the valued assistance which made these observations possible.

AN EXPERIMENTAL DEMONSTRATION OF THE PRESENCE OF THE VIRUS OF MEASLES IN THE MIXED BUCCAL AND NASAL SECRETIONS *

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In our previous communications[1] we have shown that the monkey (*Macacus rhesus* and *Macacus cynomolgus*) is susceptible to the infection of measles when inoculated with the blood obtained from a human case late in the preeruptive stage or within twenty-four hours after the first appearance of the eruption. Following such an inoculation,[2] at least 50 per cent. of the animals react in a characteristic manner. After a variable incubation period of not less than five days there is a more or less marked rise in temperature with or without catarrhal symptoms referable to the respiratory passages, such as sneezing and cough, and with or without an exanthem.

About half the animals inoculated fail to present definitely recognizable symptoms. In other words, the disease in the monkey is subject to great variation, the variations corresponding to those that have been described in the human subject and presenting in some respects similar difficulties of diagnosis. On this account we have found it necessary to use at least two animals for each test. Animals that have given a characteristic reaction do not react to a second inoculation; but this test, so valuable in the diagnosis of a previous reaction in other conditions, is, for obvious reasons, when negative, of much less significance in measles.

Our first clearly defined reaction in the monkey followed inoculation with defibrinated blood from our Case 4; and it may be recalled that we were successful in inoculating a second series of monkeys by passage from the first. We maintained this strain of measles virus by passage from monkey to monkey until very recently when, because of the exigencies of our work, we were obliged to discontinue it. In all, this strain was carried through six monkey generations during the period from May 16 to June 29, 1911. We were unable to detect any definite alteration in the virulence of this virus as the result of passage.

Besides the strain from Case 4 we obtained a strain from the blood of Case 6, and this we propagated by blood inoculations through three monkey generations. There being no further need for it, this strain was dropped.

Having satisfied ourselves of the susceptibility of the monkey to the virus of measles, we turned our attention to the question of the mode of transmission of the disease. We first decided to test its transmissibility by "contact." Accordingly, on June 17, we placed a young Java monkey (*Macacus cynomolgus*) in the cage with rhesus No. 83. The latter animal was at this time in the fourth day of an attack characterized by frequent sneezing and coughing and the presence of an abundant eruption. After a stay of six days with this animal, the young Java was moved, on June 23, to a cage with another sick monkey, rhesus No. 93b. At the time of this transfer, rhesus No. 93b was in the fifth day of an attack marked by a sharp febrile reaction, cough and an abundant eruption. Five days after being placed in this cage and eleven days after being placed with rhesus No. 83, the Java was again moved, this time to the cage with rhesus No. 103a. On the same day, June 28, it was noted that his temperature, which had previously not been above 39.4°, rose to 40° C. Five days later he presented an eruption which was more abundant the following day, then faded rapidly without appreciable desquamation. We conclude, therefore, that this Java monkey (*Macacus cynomolgus*) was infected by "contact" either with rhesus No. 83 or rhesus No. 93b. We have obtained a similar result in another such experiment. In this connection, Chavigny's[3] observation and Josias'[4] experiments are of interest.

Chavigny reported that a monkey which had been in close contact with a human case of measles in the person of its keeper developed the disease. Josias, inspired by Chavigny's observation, made a variety of attempts to infect monkeys with measles. In one of his experiments he allowed a monkey to play about in a measles ward for a period of six months, with a negative result.

While the foregoing experiment was in progress an opportunity to obtain nasal and buccal secretions from a human case presented itself. We took advantage of the opportunity to test the infectivity of these secretions.

On June 20, through the courtesy of Dr. William R. Jobson, of the Children's Hospital, we obtained some buccal, pharyngeal and nasal secretion from a patient (Case 7) in the fifth day, or about 24 hours after the first appearance of the eruption of a well-marked attack of measles. Buccal and pharyngeal secretion was collected on a sterile swab and by having the patient gargle with physiological salt solution. In addition, three

* From the Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service.

1. Anderson, John F., and Goldberger, Joseph: Experimental Measles in the Monkey; a preliminary note, Public Health Reports, June 9, 1911, xxvi, 847; Experimental Measles in the Monkey; a supplemental note, Public Health Reports, June 16, 1911, xxvi, 887; The Period of Infectivity of the Blood in Measles, THE JOURNAL A. M. A., July 8, 1911, lvii, 113-114.

2. We prefer the intravenous injection and for this purpose have found the external saphenous vein very well suited. A slender, very sharp pointed needle is essential, however, for success in entering the vein

3. Chavigny, Paul: Un cas de rougeole chez un singe, Bull. méd., Paris, 1898, xii, No. 29, pp. 334-335.

4. Josias, Albert: Recherches experimentale sur la transmissibilité de la rougeole aux animaux, Méd. Moderne, Paris, 1898 iv, 153-154.

swabs of nasal secretion were obtained. Within four hours after it was obtained, we inoculated three rhesus monkeys with this material.

Rhesus No. 94a had the nose, mouth and pharynx liberally sprayed with some of the diluted buccal and pharyngeal secretion; incidentally he was forced to swallow some of it. After spraying, the mouth, palate and fauces were well rubbed with the swab that had been used to collect buccal secretion and with one swab of nasal secretion.

Rhesus No. 94b was treated in exactly the same way as rhesus No. 94a, except that in swabbing the mouth, palate and fauces two swabs of nasal secretion alone were used.

Rhesus No. 95 was given 5 c.c. of the diluted buccal and pharyngeal secretion subcutaneously. This, and later subcutaneous inoculations with mixed buccal and nasal secretions, were made just under the skin of the ventral aspect of the thigh about midway between knee and groin. Following this inoculation, rhesus No. 95 rapidly developed an abscess at the site of injection; within three days it opened spontaneously, discharging the contained pus, after which the abscess cavity healed rapidly.

During a period of observation of twenty-eight days, none of these animals gave any recognizable evidence of a reaction. This would appear to indicate that the secretions, nasal, buccal and pharyngeal, from this patient were not infective at the time they were collected.

For access to a second patient from whom we obtained secretions we are indebted to Dr. Jesse Ramsburgh. This patient (Case 8) was a boy of six years of age. He was taken sick during the night or early in the morning of June 26, 1911. The eruption began to appear the morning of June 29. At 10 a. m., a beginning eruption was present on the face and neck. Buccal, pharyngeal and nasal secretion was collected at this time. This was done by spraying the boy's nose and throat with salt solution and then having him blow his nose and expectorate into a sterile conical glass.

The spraying of the throat caused some retching, during which he expectorated a little blood-streaked mucus. This specimen was set aside, while another was collected, the latter not being appreciably blood-stained but having mixed with it a drop of lacrimal secretion. With the material so collected we inoculated two monkeys:

Rhesus No. 104a received subcutaneously at 1:20 p. m., June 29, about 1.5 c.c. of the slightly diluted mixture of buccal, nasal and lacrimal secretion.

Rhesus No. 104b received subcutaneously at 1:25 p. m., June 29, about 2 c.c. of the slightly diluted nasal and buccal secretion containing the drop of blood.

In both animals an abscess rapidly formed at the site of injection which, at the end of 3 or 4 days either discharged spontaneously or was incised to permit of the evacuation of the pus that had formed.

In both animals the temperature, which was high at first, came down to some extent with the discharge of the pus. Later the temperature again rose in both animals and both developed well-marked eruptions. In the case of rhesus 104b the first appearance of the eruption was noted the morning of July 7. At 11:30 a. m. of the same day, this animal was bled and the defibrinated blood used for the inoculation of two rhesus monkeys, No. 110a and No. 110b. One of these (No. 110a) after an incubation period of eight days, developed a characteristic reaction; in the other (No. 110b) the reaction was not so well defined. Cultures at 37° C. of some of the defibrinated blood from rhesus No. 104b in standard bouillon showed no visible evidence of growth seven days later.

On June 30 we again collected buccal and nasal secretion from Dr. Ramsburgh's patient (Case 8), now about twenty-four hours after the first appearance of the eruption. This we used for the inoculation of two monkeys, rhesus No. 106a and rhesus No. 106b, each receiving 3 c.c. subcutaneously. Both animals developed abscesses at the site of injection. One of them, No. 106a, was found dead on the morning of July 3, death being due apparently to an acute septicemia. On the same day the abscess in the other monkey (No. 106b) opened and discharged spontaneously and the temperature, which had risen a little, declined to normal and remained at this level during the rest of the period of observation.

We collected buccal and nasal secretion a third time from Dr. Ramsburgh's patient (Case 8), July 1, forty-eight hours after the first appearance of the eruption. At this time the eruption was abundant and bright on trunk and limbs, but was fading on the face. This third specimen we used as we did the first and the second for the inoculation of two monkeys, rhesus No. 109a and No. 109b, each receiving 2 c.c. subcutaneously. Both rapidly developed abscesses which were opened in forty-eight hours. With the evacuation of the pus, the temperature, which was at first high, declined and the wounds rapidly healed. Later the temperature of both animals rose and in each the characteristic eruption made its appearance.

One of these animals (No. 109b) was selected for the purpose of passage. The eruption in this monkey was first noted July 10, just ten days after the inoculation. About twenty-four hours after its appearance, we aspirated about 10 c.c. of blood from the heart, and after defibrination used it for the intravenous inoculation of two rhesus monkeys, Nos. 111a and 111b. Cultures at 37° C. of some of the defibrinated blood in standard bouillon showed the presence of a small, slow-growing coccus.

Six days after inoculation, rhesus No. 111a manifested a slight rise in temperature and on the following day we noted the beginning of what proved to be a well-marked eruption. The other (No. 111b) of this pair of monkeys has, at this writing, fourteen days after inoculation, manifested no appreciable indication of a reaction.

The results of these serial inoculations clearly indicate that the mixed buccal and nasal secretions were certainly infective at the time of the first appearance of the eruption and again forty-eight hours later, that is, early in the fourth day and early in the sixth day of the disease, and that this infectivity was due to a living virus susceptible of transfer from monkey to monkey by blood inoculation.

In view of our experience, which strongly indicates that a rapid reduction in the virulence of the blood sets in at the end of about twenty-four hours from the first appearance of the eruption, that is, after four and a half to five days from the beginning of the disease, it would appear that the duration of the full infectivity of the blood does not run parallel with that of the mixed buccal and nasal secretions.

Although clinical observations and Mayr's[5] experiments on the human subject had made it practically cer-

5. Mayr, Franz: Beobachtungen über Masern, etc., Ztschr. d. k.k. Gesellsch. d. Aertze zu Wien, 1852, I, 13-14.

tain that the buccal and nasal secretions were infective, the results here reported are, we believe, the first to be obtained under conditions excluding other possible sources of infection, and therefore convincingly demonstrate the presence of the virus of measles in the buccal and nasal secretions.

Twenty-Fifth and E Streets, N. W.

VARIOLA AND VACCINATION

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The study of disease in municipalities or in places where large collections of statistics are available, gives one the advantage of being able to establish principles. Distinctive features of disease, however, are best elucidated if viewed in a sparsely settled region.

ADVANTAGES OF VACCINATION

Therefore, I have been led to a personal study of small-pox and vaccination such as will warrant the following conclusions:

1. Successful vaccination prevented the contraction of small-pox.
2. One successful vaccination in children of school age prevented the spread of small-pox to numerous homes.
3. A vaccination after exposure and prior to the completion of the incubation period was unsuccessful in preventing the disease or lessening its severity.
4. As exposure is possible at any age and under almost any condition and as the effect of vaccination after exposure is uncertain, the most rational course is vaccination at stated intervals, such as infancy, school age, and early maturity.
5. Mild small-pox caused more invalidism than vaccination if properly performed. In twenty-three cases of small-pox there was one case of invalidism. In 256 cases of vaccination with virus derived from a reliable source and with strict surgical asepsis, there were no complications from the operation.
6. Immunity to small-pox renders vaccination ineffective.
7. Immunity produced by a previous attack of small-pox had limitations of effectiveness as well as immunity produced by vaccination.
8. Low temperature and the severity of the disease were in direct relation to each other.

FIRST SERIES OF CASES

In Wells, Bradford County, Pa., in September, 1906, Patient 1, a young man (unvaccinated) came from North Dakota via the Great Lakes. In less than two weeks from the time he arrived at his father's farm in Wells Township, he developed variola, but the disease was unrecognized by Dr. S. His father and mother, Patients 2 and 3 (both unvaccinated), contracted the disease about two weeks after exposure.

Patient 4 (unvaccinated) visited Patient 2 and in fourteen days developed the disease in a mild form. The brother of Patient 4 (Patient 5), who was unvaccinated, contracted the disease in a more severe form than appeared in Patient 4, just two weeks from the time of exposure. Patient 5 then went to another township, where he was quarantined. Patient 4 went to H. B.'s farm to work before he had recovered. H. B. and two of his children, who attended the graded school of Wells Township, were all vaccinated and did not contract the disease; while the wife and two children (Patients 6, 7 and 8), under school age (all unvaccinated), contracted the disease in a mild form.

Patient 9 (unvaccinated) slept with Patient 4 at H. B.'s farm and went home sick with small-pox. The brother (Patient 10, unvaccinated) of Patient 9 contracted the disease from him, while three others who were vaccinated escaped the contagion.

Patients 11, 12, 13 and 14 (husband and wife and two children, all unvaccinated) contracted small-pox from Patient 9 by calling at the house; while two of the children of Patient 11 (vaccinated), who attended the graded school, did not contract the disease.

Patients 15, 16 and 17 (husband and wife and their son, all unvaccinated) and Patient 18 (husband of the daughter of Patient 15, also unvaccinated) contracted small-pox, while the daughter (vaccinated) remained immune.

There seems to be a relationship between the severity of the weather and the intensity of the disease manifestations. The weather was the most severe when Patient 15 was afflicted. He developed the most pronounced case of any, and has never regained his former health.

While still desquamating, Patient 4 worked with a threshing outfit belonging to H. R. (unvaccinated), who had had cow-pox and who did not contract the disease even though he slept with Patient 4; also vaccination was negative. All other members of the outfit were vaccinated. The threshers were at eleven farms on the Christian Hollow Road in Southport Township, Chemung County, N. Y. These were referred to Dr. Henry Flood, the health officer, who reported the cases of Patients 19, 20 and 21, residing at one of the farms, as follows: "She (Patient 19) was found in the early manifestations of the disease and also two unvaccinated persons (Patients 20 and 21), who, on being vaccinated, gained such protection that they developed only initial symptoms of the disease, even though in constant contact."

There were twenty-one cases from the North Dakota source, extending over a period of five months, which were unrecognized by three physicians, all of whom saw the cases at some time during the course of the disease. The county medical inspectors, who were present, concurred in the diagnosis of small-pox, and accepted the report from which this paper is drawn, were Dr. S. P. Hakes, Tioga, Pa., and Dr. S. M. Woodburn, Towanda, Pa.

SECOND SERIES OF CASES

The Watkins health officer notified the authorities in Wells Township that a child had been sent to that place after being exposed to small-pox. This child, C. B., Patient 22, was never vaccinated and had had chicken-pox prior to this time. She had been slightly sick for a week with an eruption of a pustular type and had been attending the graded school of Wells Township meanwhile. This school has two departments and every pupil had been successfully vaccinated the previous year. The two teachers were not vaccinated at that time, but both were vaccinated about Jan. 12, 1907. The vaccination of the B. child's teacher started to work, then disappeared when the small-pox made its appearance. This teacher (Patient 23) developed a marked case of mild small-pox and more pronounced than that of the child from whom she contracted the disease. The weather was more severe at that time. The other teacher developed a good pock from vaccination and escaped variola by its protection.

C. B. and H. B., brothers, had had small-pox in the epidemic of 1875, and both were vaccinated in January, 1907. There was a successful take in each instance. Immunity to small-pox runs out in time, at least from vaccination. H. K. was vaccinated and revaccinated for

a successful take in 1876, by scabs from cow-pox cases, and both worked at one time, though several vaccinations failed to operate in 1906; also exposure to all stages of small-pox in 1906 and 1907 failed to produce the disease. H. K.'s wife had been successfully vaccinated at intervals three times, and a vaccination would not take in 1906. The child, 2 years old, was successfully vaccinated in 1906. There was a large number vaccinated in 1875, in Wells, when there was a severe epidemic and the scab method was used which protected against small-pox and vaccination in 1906.

If the pupils of the graded school of Wells had not been vaccinated the year previous, then the two children from each of two farms of the first series might have contracted the disease at home, and would have exposed the entire school of unvaccinated children, who would have scattered the disease broadcast. In place of only two cases of the second series, there would have been a condition similar to the one just described. Think of children being exposed to small-pox for a week and not a single vaccinated one contracting the disease, while the only unvaccinated person became a victim!

The first move in controlling this epidemic was quarantine and vaccination in all cases of exposure, and also vaccination of all others who would accept of free service, All persons who had the disease were given an aseptic bath and their dwellings were fumigated. The result was that from the time that the state was notified, to the close of the epidemic, there was only one new case.

Every compulsory law is unpopular with many of those who are obliged to comply with it, and vaccination comes in this class. In the Baltimore *American* a layman has been making a series of attacks on vaccination, quoting various sources in part and then adding data of a questionable source. The following is an illustrative quotation from an open letter in the series of attacks mentioned which gives certain data without stating the relationship. This shows an intent to delude:

> The smallpox death-rate before vaccination was 18 per cent.; to-day, after over one hundred years of vaccination, it is much more deadly. In Japan, the best vaccinated country on earth, it is 32 per cent. To come home: Philadelphia shows (Welch's figures) 30 per cent.; Chicago, 27 per cent.; Cleveland, 25 per cent.; New York, 28 per cent.; while the United States Army (Philippines), 1898-1901, was 35 per cent. With these facts before us and a death-rate practically doubled, are we not justified in saying this increase is due to vaccination? If not, why not?

This is a malicious juggling of percentages like the devil quoting Scripture. Before the year 1800, small-pox claimed 10 per cent. of all deaths; since 1800, it has claimed 1 per cent. of all deaths in the United Kingdom, according to Parkes' "Hygiene."

The able article of Dr. S. Kitasato,[1] of Tokyo, will show the real value of vaccination in Japan.

According to the reports from the Philippines, prior to United States occupancy, there were 6,000 deaths a year from small-pox. In 1905-1906, 3,094,635 vaccinations were performed without loss of life or serious infection resulting therefrom. Since the completion of the vaccination, there has not been a single death from small-pox.

I sent the following quotation from the open letter previously cited, to Dr. E. H. Porter, New York State Commissioner of Health, with a request for an explanation:

> Dr. Vivefoy, of Rouen, France, said: "The vaccinators are, in my opinion, the most stupid and dangerous creatures under the sun." They know that vaccination is killing children all over the country from diseases a thousand times worse than small-pox, and they are criminals if they continue it. Every vaccination is a ghastly risk of manslaughter, for they don't know what they are using. In 1908 there were 866 cases of small-pox with three deaths in New York state. In that same year and same state there were at least five deaths from vaccination and "thousands of cases of serious injury," caused by the blood-poisoning swindle.

Dr. Porter's reply is so pertinent here that it will be given entire:

> *Dear Doctor:* There is, as stated in the quotation made in your letter of November 23, a record of 866 cases of small-pox reported in this state in 1908, and likewise of three deaths. The type of the disease was exceedingly mild.
>
> We have no record of the number of persons vaccinated during the year, but it was exceedingly large, as the law excluding unvaccinated persons from the public schools is widely enforced, and vaccination outside of this has been pressed, especially in the 125 municipalities in which, during that year, small-pox occurred. Since the certificates of death occurring in the state, outside the metropolis, come to this department for filing, the reported causes of death are subject to our inspection. I do not know the source of information on which the statement of five deaths from vaccination is based. There were during the year two cases so reported. Following the custom of the department these were investigated. The first occurred in April; a boy in fair health was vaccinated under proper precautions, without result, i. e., the vaccination did not take and there was no reaction of any sort until two weeks afterward, when about the site of vaccination an area of hyperemia suddenly developed, a bleb formed followed by gangrene beneath, and the boy died in three days, manifestly from anthrax toxemia. This could not have been vaccinal, because the incubation period of anthrax is from a few hours to three or four days and cannot possibly be fifteen days, since anthrax is not a bovine disease, and the same vaccine virus was used simultaneously on other children without untoward result. I know of no record of anthrax associated with vaccination. This infection was postvaccinal and chanced to have been inoculated at the vaccination abrasion.
>
> The other case was one in which forty days after vaccination of an adult, who had been vaccinated in childhood and who likewise had no vaccinal reaction, acute pemphigus developed and was fatal after four weeks from onset. It is not impossible that this case was one which might come in the category of certain cases of acute bullous dermatitis occurring in persons having to do with animal products which have been reported. But the causes of pemphigus are very problematic, and it would be difficult to explain why the virus in this case introduced by a most careful physician should have been the cause of this sequence, when the same virus precisely, used by him on other persons, had no such ill effect.
>
> I have good ground for saying that in twenty-five years there have not been five deaths from vaccination in this state. If vaccination had not been done at all in 1908 how many cases and deaths would there have been from small-pox? All who were vaccinated, or had been within recent time, escaped it, of which we have full evidence. At Wappinger Falls in 1908, small-pox became epidemic and the health officer vaccinated practically every person in the village, stopping the outbreak at once, although it was very prevalent in near-by cities. It can be confidently asserted that if every person in this state were vaccinated, small-pox could occur here only by importation and would in that case be negligible, since no one would run risk by contact with it. By persistently pressing the antidote we are so far rid of the bane that for a good part of this year the state has been almost free from it.
>
> The evidence of its mild type shown by but three deaths in 866 cases is no warrant for regarding small-pox as other than a pestilence to be fought uncompromisingly. That is the position taken by this department

1. Kitasato, S.: Vaccination and Small-Pox in Japan, THE JOURNAL A. M. A., March 25, 1911, p. 889.

No one will say that vaccination is entirely devoid of risk, but if its rational requirements are met the risk is negligible, not only of death but of "serious injury caused by blood-poisoning," which is alleged in the communication cited by you. This is of a piece with the extravagant statements that a small number of people obsessed with the antivaccination idea use. There is no such thing. Some watch of untoward effects of vaccination has been kept. In 1908 there was one locality where a very considerable epidemic of small-pox, with one fatal case, was combated energetically by the health officer, whose vaccination unfortunately was followed largely by bad arms; in this case the virus was found on laboratory test to contain an abnormal micro-organism. This is not to be expected and is impossible in good virus chiefly used. Vaccination is doubtless not always done with scrupulous care, nor are its subjects always intelligent in protecting it from extraneous infection; but we are educating the people so that now even the slighter ill results rarely occur. We have little hope of ever converting to sanity the possibly conscientious propagandists of the cult of antivaccination, but we are confident that the small body comprising their number and the misinformation and misstatement which form the basis of their contention will never induce the legislators of this state to remove from the statute-book the moderate compulsory vaccination laws we now have, or induce those caring for the public health to accept any one of their arguments.

EUGENE H. PORTER, Commissioner of Health.

It would be unnecessary, even if space permitted, to refute in detail the other errors and misstatements of the writer in the Baltimore *American*. The example given here indicates the worth of the rest of the assertions of the writer.

THE THERAPEUTIC VALUE OF SODIUM CACODYLATE

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At the eighth annual meeting of this society, May, 1907, there was presented a paper embodying the results of certain investigations by Holmes C. Jackson and myself entitled, "The Physiologic Action, Elimination and Therapeutic Application of Sodium Cacodylate, Used Hypodermatically."[1]

Inasmuch as certain authorities have so emphatically insisted that sodium cacodylate is possessed of no arsenical properties, either physiologic or therapeutic,[2] it may not be amiss for me to summarize our findings as to that particular point and, at the same time, to state that other observers, notably Runnels,[3] have confirmed many of our statements.

Our experiments were conducted with great care at Bender Hygienic Laboratory in Albany, N. Y., and were made not only on dogs and rabbits, but on human beings. We found that the body possesses the power of decomposing the organic compound into an active inorganic form when injected intramuscularly; that it is eliminated in the form of arsenates by the urine and feces; the urine of patients under its influence yields arsenates and reacts to Marsh's test; it has a distinct toxic effect and may be recovered in the form of inorganic arsenic in various tissues of the body, such as the liver, muscle and bone marrow.

1. THE JOURNAL A. M. A., June 22, 1907, p. 2090.
2. Fraser, T. R.: The Inefficiency of the Disodic-Methyl-Arsenate as a Therapeutic Agent, Lancet, London, 1903, cliv, 304.
3. Runnels, S. C.: New York Med. Jour., Dec. 3, 1910.

The therapy of the hypodermatic use of sodium cacodylate is based on the observation of several thousand patients treated by me or reported to me by seventy-six other observers, many of the latter trained clinicians of wide experience. The only untoward symptom observed or reported was a transitory discomfort at the site of injection when the larger doses (0.3 to 0.6 gm.) were used.

It is generally accepted that the value of arsenic as a therapeutic agent when indicated, is limited only by its toxicity, evidenced mainly in the gastro-intestinal tract; and in my opinion herein lies the justification for the use of sodium cacodylate hypodermatically, for our experiments have showed that much of that drug is changed into inorganic arsenic, is stored in the tissues and utilized as rapidly as it can be taken care of and without effect on the mucosa of the digestive tract.

Experience has taught us that in giving small doses and in giving our injections for several days, with intervals of non-treatment for fear of toxic results, as taught by French observers, we erred on the side of prudence; and that in most cases satisfactory results were obtained only by using relatively large doses daily without intermission, and often for several weeks, this being especially so in anemias of long standing.

There have been reported to me fourteen cases of pernicious anemia in which the patients were treated with sodium cacodylate; of these, four had short periods of improvement alternating with exacerbations of the symptoms, and finally death. Of the remaining ten reported as cured, five have been but so recently discharged (three, five, six, eight and nine months) that we cannot claim them as cures, even though they are reported by careful observers and have every evidence of recovery. The last five, however, seem to be properly classed as well, for their discharges from treatment with no recurrence of the symptoms are, in point of time, respectively, fifteen months, eighteen months, twenty-two months, twenty-five months and thirty-seven months. In these five cases careful blood-counts were made at frequent intervals, and from the character of those reporting, as well as from the blood-pictures and the case histories, I have no doubt as to the correctness of the diagnosis.

The history of one case, that of the patient longest recovered, is very complete; and as the dosage used was much smaller than was used in the other cases, I give it here.

REPORT OF CASE

CASE 1.—*History.*—The patient was seen Sept. 6, 1906. The diagnosis was pernicious anemia and achylia gastrica, with indigestion and loss of strength. The family history was not important. There was no history of cancer or tuberculosis. The patient had been an exceptionally healthy man; moderately hard worker; moderate in use of alcohol; excessive tobacco-chewer and smoker; had had no serious illness; weight dropped 30 pounds during the previous year. One year previously the patient had a hard attack of diarrhea lasting two weeks; lost weight rapidly during this period and became very weak, so that he was hardly able to stand. No blood was noticed in the stools. He has had other attacks since, but not so severe; has had stomach trouble for the past six years; inability to digest food properly; vomiting has occurred at intervals but has not been a pronounced symptom; no hematemesis; appetite fair; about one year ago tongue became very red and raw and very sore.

Recent Illness.—Exact date of onset was not known because the past illness merged into the present condition. In the early part of the previous summer the patient went to the seashore to improve his health, but became very weak while

there, hardly able to move about. He returned after a month unimproved and had been confined to bed since. He was very weak, could not digest food and had much distress after eating; vomited occasionally; no blood. He was troubled much with dizziness; had had diarrhea for past two weeks with semi-fluid stools; no blood noticed; sweated profusely at night and had disturbing dreams; hands cold and clammy. Patient was short of breath on exertion; had noticed no hemorrhages in the skin or from the gums.

Physical Examination.—Patient is of moderate height, musculature well developed but soft and flabby; fairly well nourished; no emaciation; panniculus present; color a peculiar lemon-yellow tint; lips and conjunctivæ pale; tongue clean; no edema of feet or legs; pulse 88; temperature subnormal; respirations normal; pulse soft, easily compressible and regular; wall not palpable; lungs clear on auscultation and percussion. Heart: impulse not seen but felt in the fifth interspace, 12 cm. from midsternal line; dulness not increased to right; systolic murmur heard all over precordium and transmitted to axilla; other sounds clear; liver and spleen not palpable; stomach not enlarged; no tenderness, no mass felt; abdomen not tender; no masses, no dulness in flanks. Ewald test breakfast gave no free hydrochloric acid; total acidity, 14; no lactic acid, no pepsin. No obstruction; urine negative.

Feces: No occult blood, mucus, parasites or ova.

Blood: Hemoglobin 55 per cent.; reds 1,200,000; whites 6,000; micro- and macrocytes; marked poikilocytosis; normoblasts present.

Course of Disease.—Sept. 22, 1906: Hemoglobin 40 to 50 per cent.; reds 736,000; whites 2,200; megaloblasts.

Oct. 11, 1906: Hemoglobin 45 per cent.; reds 864,000.

Oct. 24, 1906: Pleurisy with effusion in right chest. Blood-count, hemoglobin 40 per cent.; reds, 1,120,000; whites 4,800.

Nov. 15, 1906: Hemoglobin 55 per cent.; reds 1,750,000; whites 5,000.

Dec. 8, 1906: Hemoglobin 65 per cent.; reds 2,240,000; whites 3,000.

Jan. 9, 1907: Patient much better, up and about every day. Gained 10 pounds in weight; tongue sore, slightly swollen and appears edematous; lungs clear; hemoglobin 60 per cent.; reds 1,952,000; whites 8,000.

Feb. 28, 1907: Patient much weaker; stomach trouble has returned; gas and pain after eating; bowels very irregular with periods of diarrhea; night sweats; no loss of weight; edema of feet and legs at night: hemoglobin 39 per cent.; reds 1,696,000.

April 27, 1907: Hemoglobin 26 per cent.; reds 960,000; whites 3,000; microcytes and macrocytes, erythroblasts and megaloblasts. Patient very pale; weight about the same; edema of feet and legs at night; short of breath.

Aug., 1907: Effusion in chest returned on opposite side; patient in bed; very weak. Hemoglobin 35 per cent.; reds 2,600,000; no nucleated cells in smears.

Jan. 13, 1908: Patient feeling well recently; some shortness of breath on exertion. Hemoglobin 60 per cent.; reds 2,600,000.

April 22, 1908: General appearance good. Pruritus of general distribution. Hemoglobin 70 per cent.; reds 2,272,000; no nucleated cells in smears.

Treatment.—From September, 1906, until April, 1908, the treatment with sodium cacodylate was given without remission. The dose at the start was 0.03 gm. hypodermically, which was increased to 0.065 gm. given every three days. Dr. Kirkpatrick, who carried out the treatment, says that he believes the success attending this case was due to the sodium cacodylate, as no other specific medication was attempted at any time. No untoward symptoms were noted by him.

The patient made constant and steady general improvement, and was able to attend to his work.[4]

I have records of 410 cases of simple anemia treated by myself and by others, and in every uncomplicated case there has been complete recovery. I have yet to see a case of anemia in which the administration of this salt has not markedly and, usually, quickly increased the percentage of hemoglobin, and, as a rule, the red cells.

The most brilliant results have been in neuroses accompanying anemia.

CASE 2.—In December, 1910, I treated a young married woman, aged 23, whose blood showed hemoglobin 60 per cent. and red cells 3,600,000, and who came to me for persistent headache which she had suffered from for eleven years, and from which she was rarely free, attacks lasting five and six days with but short intermissions. She was given in all twenty-six injections, commencing with 0.2 gm. which was continued for two weeks, and then 0.3 gm. She received in all 6.4 gm., and was discharged as cured at the end of forty-two days; and since her discharge on March 25 last, she has had no return of the headache.

CASE 3.—On Feb. 7, 1910, I commenced treatment of a woman past 30, married, and with one child, who gave a history of headaches so severe that at least one-half of her life was spent in bed and which were only partly relieved by the persistent use of headache powders containing acetanilid. She reported having been treated by many men of note in various cities, but without avail. Unfortunately, no blood-examinations were made, but she gave in the color of her skin and mucous membranes every evidence of anemia. Her treatment was carried out in the same manner as the preceding case, and in all she received 12.5 gm. Since her discharge (May 2, 1910), she has had but three headaches of short duration.

CASE 4.—A patient with chronic bronchitis and spasmodic asthma of sixteen years' duration, treated for a mild grade of anemia, was discharged with entire alleviation of the symptoms nineteen months ago, the patient having gained 42 pounds, which he still retains, there having been no recurrence.

My records show twenty-two cases of neuritis with sixteen recoveries under treatment. One patient with tic douloureux of six months' duration recovered; another improved and then was not benefited. Of seventeen cases of eczema, most of them of a squamous type, fifteen were cured.

Twenty-two patients with psoriasis were treated with but nine recoveries, and several cases were apparently aggravated. Neuralgias and gastralgias responded favorably in almost every instance, and many cases of dysmenorrhea in the evidently neurotic were cured, although in several instances there were recurrences requiring further treatment. Certain types of malaria, such as are seen in former residents of tropical and semi-tropical regions, which had resisted the persistent use of the quinin salts, gave the most remarkably quick and permanent response.

It has proved much more satisfactory in the treatment of chronic rheumatism than other forms of arsenic, and one case of rheumatoid arthritis has apparently been checked by its use. A case of puerperal eclampsia has been reported in which there was a marked and rapid recovery following its use, but I am not prepared to say that its employment was the cause. As was noted in our previous paper, it was successfully employed in splenic anemia and chorea, and in one case of lichen ruber.

It is most important in the administration of the drug to secure a perfectly pure salt free from arsenous oxid (AS_2O_3) contamination.

My present method is to have the pharmacist weigh out for me a number of doses—0.1 gm., 0.15 gm., 0.2 gm. and 0.3 gm.—and place them in sterile ½ dram phials, tightly corked; this protects this most hygroscopic drug from the effects of the atmosphere. At the time of injection the dry salt is emptied into the barrel of the sterile syringe, into which boiling water is drawn until all the salt is dissolved. As soon as the solution is cooled to about body heat, the needle is plunged quickly deep into

4. The notes and the history in this case were reported by Dr. H. W. Carey of Troy, N. Y., who made the blood-examinations.

the muscle of the buttock, which has been previously scrubbed, and the solution slowly injected. No stock solution should be prepared, as it quickly deteriorates; not only do fungi develop, but decomposition takes place and the amount of sodium cacodylate in each dose is uncertain.

I have established for my own convenience an arbitrary and somewhat hybrid standard of 1 mg. for each pound of body weight to start with, gradually increasing the dose to 0.2 gm., and frequently to 0.3 gm., and I am sure that the failures to get results with sodium cacodylate are more often due to insufficient dosage than to any other cause.

It would appear that sodium cacodylate is of use in the same class of cases as arsenic, and because of its nontoxicity, is far more desirable in many cases in which large dosage is indicated.

I have purposely left any reference to the use of sodium cacodylate as a substitute for "salvarsan" (606) until the last, as our knowledge is so limited and the reports contradictory. It has seemed to many clinicians that if salvarsan in large doses was of value in lues, then theoretically sodium cacodylate, being less toxic and having a slightly larger percentage of arsenic, should be of value. That this reasoning is fallacious is very tersely stated by Nichols,[5] who says:

> For all practical purposes salvarsan should be regarded as a new substance and not merely as a new arsenical compound. The arsenic is only a part of a complicated instrument and would be of little value alone. The arsenic must be reduced, trivalent and in firm combination with the benzol ring; and the benzol ring must be substituted with the OH group and the NH_2 group in the ortho-position before a maximum destruction of spirochetes is possible. From this point of view, sodium cacodylate has no more relation to salvarsan than a pair of artery forceps has to a lithotrite in the extraction of a stone from the bladder.

Since December, 1910, I have received reports on the use of sodium cacodylate in various forms of syphilis from many observers, and there have been many cases reported in the medical journals; and while in some cases there have seemed to be satisfactory results, the greater number of observers report it to be of no value, and I am inclined to think they are correct.

If it is used, however, I think that massive doses, 0.6 gm., should be employed in order that the spirochetes should be overwhelmed, if possible, as is the case with salvarsan.

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A CASE OF SPOROTRICHOSIS

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The excessive frequency of sporotrichosis in the middle western states has recently been brought to the attention of the profession by Dr. Sutton.[1] The following typical clinical example has been under my care.

History.—Mrs. W., aged 42, a native of Ohio, resident of Jefferson County, Kan. The cutaneous history of the family is negative. Her general health has always been exceptionally good. There is no history of serious illness; she is the mother of two children, a girl aged 16 and a boy aged 9, both having perfect health. One month previous to her visit to me a roundish, slightly nodulated papule was noticed at middle of lower third of internal surface of right thigh. There were no subjective symptoms, excepting a pricking, uneasy sensation. This nodule gradually enlarged to the size of a hazelnut, other nodules appearing one at a time until there was a chain of seven in number, only two breaking down.

Examination.—There was no grandular enlargement, systemic disturbance, impaired function or any other lesion found. The ulcer was 4 cm. long and 3 cm. wide and 3 or 4 mm. deep, the surface of the ulcer was irregular and of a reddish brown color, covered with a thick grayish tenacious pus. Four cm. above the primary lesion was another nodule which broke down causing a similar ulcer, although smaller in size. The areola of hyperemia which usually surrounds an inflamed wound was quite narrow, the edges of the ulcer were thickened and undermined and of a reddish blue color. The line of junction of diseased and normal skin was quite clearly marked. The remaining nodules were uniform in size and evenly distributed up the thigh, very superficial and with no fluctuation. None of these lesions was painful or tender to the touch and no connecting link or extending red streaks were visible.

Treatment.—The ulcers were dressed with antiseptic dressings. The patient was put on increasing doses of potassium iodid. The nodules disappeared and the ulcers healed very readily, leaving practically no scars.

5. Nichols, H. J.: THE JOURNAL A. M. A., Feb. 18, 1911, p. 494.
1. Sutton: THE JOURNAL A. M. A., Sept. 17 and Dec. 24, 1910.

Therapeutics

DELIRIUM TREMENS

The use of alcohol is so very general that it behooves the practitioner to be mindful of its possible effect on every patient whom he is called on to treat. In individuals who have habitually used considerable quantities of alcoholic stimulants, even although they may rarely, perhaps never have drunk to intoxication, the unfavorable effects of the chronic indulgence in alcohol are frequently seen when acute or chronic illness supervenes. Especially in the severe acute infections, like pneumonia, the symptoms are frequently modified or added to by the effects of the habitual use of alcohol.

In commencing the treatment in a case of this kind, the physician should inquire carefully, and consider the possible influence of the habitual use of alcohol on the symptoms and course of the disease.

Besides the occurrence of symptoms of alcoholism as a complication of other diseases, the excessive use of alcoholic drinks not infrequently results in a sickness dependent entirely on this abuse of the alcoholic stimulants. These conditions are so common that they are well recognized by every practitioner. The sleeplessness, the restlessness, and the tremor, passing on to delirium, more or less active, accompanied by hallucinations, form a picture so common that it does not need to be elaborated. The condition may vary in severity from a moderate degree of restlessness and insomnia lasting for a few days and followed by recovery, to pronounced insomnia with delirium and hallucinations, which lead to active and violent voluntary movements which often must be forcibly controlled in order to prevent the patient from doing injury to himself or to persons and things around him.

The treatment for this condition has been the subject of much discussion and of much difference of opinion. Several important questions have arisen as to the proper course to pursue. Should a patient with delirium tremens be allowed to take a moderate amount of alcohol, or should it be entirely denied him? Those who look on delirium tremens as a toxemia argue that it is poor judgment to add to the toxemia by giving an additional amount of alcohol. But, on the other hand, it has been found practically that many patients do better, especially when the symptoms are not severe and when

the delirium and hallucinations are not prominent, if allowed to take a moderate amount of alcohol. For example, one ounce may be allowed such a patient every four hours. When the symptoms become more severe, however, the propriety of giving alcohol is not so clearly established, although even here many believe that, owing to the impending failure of the circulation, a moderate amount of alcohol should be given for its effect on the circulation.

A common characteristic of these cases is the loss of appetite, accompanied often by nausea and vomiting, so that it is difficult for the patient to retain either nourishment or medicine. If the stomach is irritable, it is necessary to give such gastric sedatives as bismuth or bicarbonate of sodium, with such aromatics as capsicum or peppermint. The stomach being in a condition to retain food, abundance of light nourishment should be administered at regular intervals. Milk may be given hot or cold according to the preference of the patient; but if he has no preference, preferably hot. Other light foods should be given, as broths, gruels, or soups. If he is able to take solid food, easily digestible articles may be added, such as custard, eggs, lamb-chops, or beefsteak.

Concerning the use of sedatives and hypnotics in this condition there is scarcely less difference of opinion among practitioners than in regard to the use of alcoholic stimulants. Insomnia and restlessness being such prominent symptoms at the beginning of the trouble, it naturally suggests itself to the physician that something to quiet the nervous system and produce sleep is likely to prove useful. Although many men of experience are opposed to the administration of drugs of this class, still there are strong reasons for believing that, especially outside of hospitals where trained attendants as a rule cannot be called on, the use of at least the milder hypnotics is decidedly advantageous.

At the first appearance of restlessness and insomnia the patient should be given the bromid of sodium in 1-gm. (15-grain) doses, repeated every two, three, or four hours. In the evening when it is natural to desire that the patient should sleep, a more active hypnotic should be used. Chloral in a dose of 1 gm. (15 grains), and repeated in one hour, if needed, will generally prove effective in securing prolonged sleep, after which the patient's condition will frequently be found very much improved.

Although chloral is undoubtedly the peer of all hypnotic drugs, it is rated as a cardiac and circulatory depressant, and, as is well known, can cause heart failure and death. All hypnotics except morphin, however, in sufficient doses to produce sleep, are cardiac depressants, and it is quite probable that a dose of chloral which is sufficient to produce sleep in a patient with delirium tremens is no more depressant than the dose of other hypnotics sufficient to produce sleep in a patient in the same condition. If the circulation is notably weak, however, other hypnotics may be selected. Paraldehyd has had a long period of approval. Its action is rapid, and many times satisfactory. If the dose is sufficient, there may be considerable circulatory depression for a short time. The various synthetic hypnotics, old and new, sulphonmethane (sulphonal), sulphonethylmethane (trional), diethyl barbituric acid (veronal), and sodium diethylbarbiturate (veronal-sodium), all act more or less satisfactorily, but act much more slowly than than do chloral or paraldehyd, and in doses that are sufficient will produce considerable later depression. A sufficient dose of scopolamin hydrobromid, hypodermatically, to cause sleep in this excited condition is also likely to cause depression. Also, there often is an increased susceptibility to any atropin or atropin-containing drug, so that the cerebral excitation may be increased by scopolamin.

In cases of acute illness in which, on account of the history of alcoholic addiction, there is reason to believe that symptoms referable to the habitual use of alcohol are liable to supervene, the use of sedatives should be commenced early before any of the characteristic symptoms of alcoholism appear, and should be continued until it is evident that there is no danger of prolonged insomnia and restlessness.

In severe cases in which active delirium with hallucinations has supervened, energetic treatment is urgently demanded. Danger must be looked for in two or three principal directions. The circulation is threatened, owing to the weak action of the heart, which may result in edema of the lungs. At the same time the circulation in the brain is especially affected so that there is a passive congestion, with more or less edema. Added to this are the symptoms of exhaustion due to the insomnia and violent muscular agitation. Here there is urgent necessity of maintaining the nutrition of the patient by giving liquid nourishment at regular intervals. It is necessary also to watch the circulation carefully and to maintain the action of the heart. The use of alcoholic stimulants for this purpose, while still recommended by many, is of doubtful propriety at this stage of the disease.

If there is serious cerebral excitement and hypnotics in ordinary doses do not act, the best treatment is ergot, in some reliable aseptic form, injected intramuscularly into the deltoid muscle, a syringeful at a dose. One hour after this injection, a hypodermic injection of morphin may be given, not more than ¼ of a grain.

Theoretically morphin is not good treatment when there is cerebral excitement, as the dose required to quiet such excitement is very large, while smaller doses tend to increase the excitement. Under the condition described, however, ergot given first to relieve congestion of the brain and spinal cord and followed by morphin, prevents the initial excitement of the morphin and projects the length of time which a given dose of morphin will act, and the outcome is satisfactory.

If there are signs of cerebral edema, no treatment is better than, or so satisfactory as, the subcutaneous ergot treatment. The ergot may be repeated in three hours, and then once in six hours for several doses, if it is required. The administration of ergot by the mouth for the action desired on the brain is absolutely unsatisfactory and cannot be relied on. Also, if the heart is weak, ergot is the drug indicated.

In other words, if there is apparent edema of the brain, ergot; if there is cerebral excitement and the heart is efficient, chloral; if there is cerebral excitement and chloral is unsatisfactory alone, add ergot; if there is cerebral excitement and the heart is weak, ergot and morphin.

Strychnin is inadvisable as a stimulant in this condition. Aromatic ammonia may be given if a quickly acting stimulant is required. A saturated solution of camphor in an aseptic oil may be given hypodermatically, if required, as a quickly acting stimulant. Strophanthin hypodermatically may be given, if deemed advisable. Digitalis, which does not act well for at least twenty hours, is generally not indicated.

In the meantime, while these various dietetic and medicinal measures are being employed, the patient should be kept quiet, should be constantly watched, and should be frequently bathed with warm water, or, if strong enough, given hot baths

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[*For other information see second page following reading matter*]

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TICK CONTROL IN RELATION TO ROCKY MOUNTAIN SPOTTED FEVER

Dr. H. T. Ricketts, in his classical work on Rocky Mountain spotted fever, demonstrated that wood-ticks collected from nature could infect guinea-pigs with the disease and recommended as a prophylactic measure the eradication of the tick. Active steps to destroy or decrease the number of ticks were, however, never taken by him, although dipping and spraying of domestic cattle and periodic changing of pasturage were suggested.

Recently, Cooley[1] of the Montana Experiment Station, in cooperation with the Bureau of Entomology, has made a study of the control of the tick in relation to the disease. His method is to collect as great a number of ticks as possible from all the wild and domestic animals in the Bitter-Root Valley and to follow this by a study of their species and life history. Six different species of ticks were found in the valley. It has not been proved that all of these transmit the disease, but in the light of the findings of Maver,[2] in which different species of ticks from Texas, Missouri and Massachusetts were shown to be able to carry the disease, it is not at all improbable that all the ticks in the valley may do so.

Cooley found adult ticks on all large animals, but principally on horses and cattle. The immature stages, on the contrary, were obtained only from small wild animals. A conclusion which rests more on an hypothetical than on an experimental basis is that the life-cycle of the tick in nature is two years instead of one, as hitherto believed. This, if true, has an important relation to the freeing of the valley from ticks. Since the adult ticks feed chiefly on domestic animals, if their life-cycle extends over two years, the domestic animals must be kept free from ticks for two consecutive years before any material reduction in the number will be accomplished. Cooley believes that the key to the situation is in keeping domestic animals free from ticks, and he is endeavoring, at the present time, to prove this by dipping cattle in large numbers. Another method is the prevention of the maturation of the larval and nymphal stage by wholesale destruction of the small wild animals. The belief that tick control alone is a sufficient method of securing relief from the disease would seem better founded if the ticks were confined to small districts, but, when the areas involved are as large as the western portion of Montana, Idaho, and districts in other western states, where Rocky Mountain spotted fever occurs, the magnitude of the undertaking becomes apparent at once.

1. Cooley: Bull. 85, Montana Agric. Col. Exp. Station.
2. Maver: Jour. Infec. Dis., 1911, viii, 322.

THE DANGER OF GENERALIZED MEDICAL TERMS

Long ago Roger Bacon declared that the principal reason why men did not advance in knowledge was that they were afraid to say "I do not know." Most persons prefer a dubious explanation to none. Words often conceal the speaker's ignorance even from himself. This tendency has now and again been observed in medicine.

Thus, Sir William Gowers[1] called particular attention to the ease with which a word may come to conceal our ignorance or laziness, or lack of time to study a case. Speaking of the word "neurasthenia," he said: "Its practical utility is low, but has influenced its use. Its employment is extended far beyond the needs of the patient and, indeed, did so from the first. It often tends to be too satisfying. If physicians actually think that they have found the malady from which the patient is suffering, an influence is often exerted on them of which they are unconscious, which lessens the tendency to go further in search for the whole morbid state. Words are our servants, but they often exert a very masterly influence on us, none the less effective because we are not conscious of it. They have also their own vitality, feeble or vigorous, and we have little power to influence their career."

Several years ago, to use another illustration, malaria was considered to be a very prevalent affection even in the northern portion of the United States. Patients who suffered from lassitude were sure that they had malaria; "that tired feeling" was almost a pathognomonic sign. As a consequence many of the neurotic affections that have since come to be grouped under other heads were classed as malaria. Various fevers masqueraded under this term. Irregular mild forms of typhoid fever were probably often diagnosed as malaria. Unfortunately, even some more serious affections came under the same head, so that there was apparently a large death-rate from the disease. Nephritis in its later stages was sometimes classified as chronic malaria, and occasionally even cirrhosis of the liver was so classified. Gall-stone disease, particularly when not productive of typical gall-stone colic, but only of some vague discomfort with yellowing of the skin, and especially if accompanied by irregular septic fever, was almost sure to be called malaria. Chronic appendicitis not infrequently masqueraded as malaria. Latent abscess came under the same rubric. When temperature ran up after child-

1. Gowers: Lectures on Diseases of the Nervous System, Second Series, Blakiston, Philadelphia, 1904.

birth, malaria was often blamed for it. Low-grade pneumonia occasionally wore the semblance of malaria, and tuberculosis in its early stages was nearly always malaria to some physicians.

We have now advanced beyond the stage at which malaria served as a catch-all in pathology and etiology. We know that malaria is extremely rare in the northern part of the country, that most of our large cities have absolutely none of it, and that a diagnosis of malaria without demonstration of the characteristic plasmodium in the blood can be due only to ignorance or carelessness. It does not follow necessarily, however, that we have advanced beyond the careless superficiality which so often substituted a word for an idea in the case of "malaria."

The present use of the word "influenza" seems to offer an instructive parallel to that of "malaria" a generation ago. A great many deaths from otherwise undefined causes of all kinds are now ascribed to influenza. Most of the respiratory affections, of the winter and early spring particularly, are called influenza or grip.

During the last two years in New York state, for instance, the number of deaths from "influenza" has been over 10,000. The month of March of this year showed the highest mortality the state has ever had. The state department of health declared that "the excessive death-rate has been from the prevalent influenza, which is estimated last year to have caused 10,000 deaths and which has been, thus far, this year more prevalent and fatal in its effects than it was last year." This was said of the mortality statistics up to the first of April.

It is doubtful whether many of these deaths attributed so lightly to influenza were really due to the specific infectious disease which alone deserves that name, and whether many of them were not merely various forms of respiratory disease and even of visceral disease of many other kinds loosely called influenza or grip. This latter term particularly has an attraction for too many physicians. In recent years many forms of intestinal disease and affections involving important abdominal organs have been attributed to influenza, especially if there were catarrhal or respiratory symptoms at any stage of the affection. It seems justifiable, therefore, to ask whether we are not now doing with the word "influenza" what we did with the word "malaria" twenty years ago. Are we using it as a convenient basket, into which we put diseases and disorders of various natures that a little more care in differential diagnosis would separate from each other?

We have reached the end of the influenza period for this year; but it is worth while to consider the question in advance of the next winter season, so that we may be prepared to use less freely and loosely that convenient but dubious and—since it encourages ignorance, somewhat dangerous—term "influenza."

MACAURA COMES BACK

For the information of those who may not have heard of the individual who forms the subject of this caption, we give the following: "Dr." Gerald Macaura is an American "vibro-therapist," who for the past three or four years has been separating gullible Britishers from their money. In 1908, Macaura was conducting an "institute" in Manchester, England. His particular branch of quackery consisted in operating and selling a "blood circulator" that his dupes were assured was "Protected by His Majesty's Royal Letter Patent." In his advertisements, Macaura asserts that he is an "F. R. S. A.," whatever that may be. Also, he is a "graduate of the National Medical University of Chicago." The latter claim is interesting because, although Macaura was making this claim as long ago as 1908, the official list of alumni of the National Medical University of Chicago, published in 1909, does not contain Macaura's name.

From the standpoint of the British dupes, who have parted with real money for Macaura's "vibro-therapeutics," it is of little moment whether this quack is or is not a graduate of the National Medical University. It is true that the word "university," which was made much of in his British advertisements, may have been responsible for a certain proportion of his "patients" throwing away their money. Naturally, the average Britisher had no means of knowing that the National Medical University was not a university in the British sense; neither could he be expected to know that it was a medical school of the night-class type that had been discredited by the authorities of the very state in which it operated.

Macaura's success in Manchester was so great that he decided to transfer his quack institution to larger and more profitable fields. He went to London and, with the money that he had made at Manchester, subsidized a large portion of the London press by methods common to those of his class, namely, by placing large advertising contracts. He went farther; he hired public halls and gave "lectures" in typical "Kickapoo Indian Medicine" style. Moreover, as a master-stroke of advertising he was able to interest that well-known but erratic individual, W. T. Stead, editor of the British *Review of Reviews* and author of the classic, "If Christ Came to Chicago." Mr. Stead's advocacy of anything medical is, generally speaking, *prima facie* evidence of its unscientific and bizarre character. Some years back, the versatile editor of the *Review of Reviews* championed the notorious Count Mattei cancer cure. Analysis proved this fraud to be nothing but water, but the author of "Letters From Julia" was not nonplused on that account. The discussion made good "copy" while it lasted and that is all any enterprising journalist could ask.

But, to return to Macaura. Most quacks find that sooner or later the number of dupes they can fool is limited. As the knowledge of the inefficiency and fraud-

ulency of quackery is gradually forced on the public, it finally overcomes the counter-force of blatant and mendacious advertising. Apparently, Macaura has reached this point, for we learn from an authoritative source that he is "coming back." The spectacle is somewhat unusual. It is more common to find fakers in various branches of human activity coming from Europe to America, fleecing their clientele and going back to their native land to live in ease on their ill-gotten gains. The tide seems to be setting in the other direction. The tainted money that has been wrung from the ignorant sick and the gullible suffering of the British Isles is being brought to the United States—presumably to Chicago. We look forward with no degree of enthusiasm to Macaura's return to Chicago. This quack-ridden city would prefer his room to his company. The most we can do is to felicitate the people of London on being rid of a most undesirable citizen. Their gain is our loss.

Current Comment

SCHOOL CHILDREN AND CATTLE

In the hope of hampering medical inspection of schools, the National League of Medical Freedom recently sent a circular letter to school superintendents, asking them to oppose further inspection of school children. The superintendent of schools in a large eastern city replied enumerating a few reasons why school inspection is desirable.[1] Among other things he said that in his own city, over 400 cases of head-lice among school children were discovered in one year and that it was necessary in some cases actually to force the parents to allow their children to have proper treatment. This is not a pleasant topic for discussion, but it is infinitely better to discuss it freely than to permit unfortunate and helpless children to be tortured by such horrible parasites. It is conceded that any member of the National League of Medical Freedom has a right to entertain such parasites unmolested, if he so desires, so long as he does not come in contact with any of his fellow citizens who are more particular. It will be difficult, however, to convince the American people that it is an infringement on personal liberty or a violation of the constitution of the United States for school superintendents and boards of health to compel ignorant and delinquent parents to keep their children decently clean and to prevent them from spreading disease among others. Such conditions in livestock would not be tolerated by any self-respecting farmer. Striking corroboration of this fact is found in a recent number of the Louisville (Ky.) *Times*, in which appears the statement that a federal quarantine against the cattle in Daviess County, Ky., is probable, in order to eradicate itch among cows in that county. Ten head of beef cattle shipped from Owensburg, Ky., to Buffalo, N. Y., were found by the government inspectors to be infected with itch. The governments inspectors did not wait to examine the federal Constitution. They did not consider that the personal liberties of the cattle were being infringed on. They did not stop to quibble about state rights. They "asked at once what steps Kentucky would take to stamp out the disease." They notified the state authorities that unless prompt measures were taken to prevent the further shipment of infected cattle, Daviess County would be quarantined. In spite of this harrowing exhibition of federal tyranny, so far as we have learned up to the time of going to press, no representative of the National League of Medical Freedom has as yet appeared in Daviess County to champion the cause of these persecuted cattle. No branch of this society has been organized among the Daviess County cows. Their cause has not even been championed in a speech before the United States Senate. No editorials on the right of these cows to have the itch have appeared in any of the patent medicine organs. The right of the federal government to protect the live stock of the country against infection is conceded by all. Yet in one city last year 400 school children were found suffering from lice, and the only means of preventing such horrible conditions, viz., school inspection, is subjected to an organized attack as an unwarranted invasion of personal liberty. Seriously, is it not time we asked ourselves, as citizens, how many of our school children one cow from Daviess County is worth? What is the stage of civilization in a nation which uses the whole force of governmental authority to prevent itch in cattle, but which hesitates to protect its school children lest it be said that individual liberty is thereby trampled on? One can only echo Mme. Roland's dying cry, "Oh, liberty, how many crimes are committed in thy name!"

1. THE JOURNAL A. M. A., July 29, p. 410.

ALSO "GETTING" THE COURTS

Taking their cue, perhaps, from the methods of the "patent medicine" and impure food interests in attempting to attain their selfish ends, the dairymen supplying milk to Canton, Ohio, recently attempted a high-handed procedure to prevent legal interference with their objectionable methods of producing and distributing milk. The local board of health, in its crusade for better, more healthful and cleaner milk, started legal proceedings against certain milk-dealers whose methods and whose milk did not comply with the requirements of the law. The dairymen, without attempting to justify their course or to defend their product, and, it is alleged, disregarding any considerations of the health of the citizens to whom they served adulterated and therefore dangerous milk, threatened the somewhat desperate procedure of abolishing the police court in which their cases were to be tried on the ground that the law creating it was unconstitutional. "Big business" and "high finance" are accused sometimes of seeing that complaisant officials occupy seats in high places where they will do the most good as far as the schemes of the former are concerned, but the dairymen, not having been so far-seeing, perhaps, sought to adopt a plan which they believed to be equally good and possibly more direct—abolishing the court altogether. While it would be rash, without knowing all the facts, to pronounce decisively on the merits of the controversy, there is a suspicious familiarity in the methods employed. One's admiration is challenged in turn by

the ingenuity of the lawyers for the dairymen who are responsible for this peculiar attempt to defeat beneficent health measures on a technicality, and by the audacity of the dairymen who would pursue, fatuously, their old, dirty and unhealthful methods of producing and distributing milk without regard to the number of babies they might thus directly kill, or the number of adults whose health they might thus jeopardize, in order to obtain a larger margin of profit. Both the lawyers and the dairymen should wake up and adopt more modern ideas of business and of conduct. The theory which puts the dollar before the man is rapidly becoming exploded, and especially in matters that affect the health of the people so directly. The abolishment of one small police court will not for long secure to misguided dairymen license to continue to furnish contaminated milk to the citizens of Canton or anywhere else. The idea that dealers may thus continue dangerously to exploit the people needs revision in accordance with an awakened business and civic conscience.

ANOTHER OUTRAGE

Immigration commissioners from nineteen states recently met in Chicago to form a national organization. The commission proposes to publish a "handbook for the guidance of land seekers," which will contain authoritative information concerning farm and mineral lands in the various states. Dissemination of information of this kind will make it less easy for mining promoters, land sharks and other "get-rich-quick" gentlemen in the same line of business, to defraud the public. The book will be distributed free and "will be circulated in every state in the Union in opposition to many 'promotion' companies, which draw wondrous pictures concerning land in a certain locality without telling any of its bad features." Here, then, we have again the same unwarranted interference with private business that has characterized the action of Dr. Wiley's bureau. The only difference is that in the latter case it was the "patent medicine" business interests that were hurt, while here it is going to be the J. Rufus Wallingfords who do land promoting. We may expect to see a new "Advertisers' Protective Association" formed to fight the immigration commissioners' high-handed interference with a lucrative business. Land sharks and "patent medicine" fakers must deplore the present tendencies of governmental agencies to assume paternalistic rôles. Men who make a business of defrauding the public are always believers in the *laissez-faire* doctrine. They hold that swindling and being swindled are inalienable rights of every free-born American. Honest men believe differently.

STATE SUPPORT OF MEDICAL EDUCATION

The wave of reform in medical education moves steadily on, and of much significance is the part which state universities are taking in this reform. Slowly but surely colleges organized and conducted on the stock corporation basis are either obtaining connection with privately endowed universities or are giving way to the state supported university medical school. In the latter instance, the medical school is conducted as an integral part of the state's educational system. The latest instance is in Arkansas, where two independent medical schools, the College of Physicians and Surgeons and the University of Arkansas Medical Department, both of Little Rock, have been united. The school formed by this consolidation is to be controlled and financed by the University of Arkansas. This is but a repetition of what has already taken place in Indiana, Minnesota, Colorado, and other states, where only one medical school remains in each instance, that being the medical department of the state university. In several other states, generous appropriations have been made for state university medical schools. This larger state support of medical education has another significance, however. It means that since the state is endeavoring to provide a good training for medical students it will not tolerate the turning out of poorly trained doctors by low-grade institutions. In fact, the inferior medical colleges even now are reading the handwriting on the wall. This accounts for the opposition, direct or indirect, which they are making toward state endowments for medical education in Nebraska, Illinois and elsewhere. This opposition, however, will not be misunderstood and the progress for better standards of medical education has received too much impetus to be stopped by obstructions prompted by selfish interests. It is not only the right, but also the duty, of each state to provide a good training for those who are to have in charge the health of the people of that commonwealth as is the case in nearly all other countries.

Medical News

ILLINOIS

Personal.—Dr. George S. Chalmers, Galesburg, coroner of Knox County, is reported to be ill with pleurisy.——Dr. George F. Ruppert, Elgin, sustained a painful injury to the right eye while working over an automobile, July 18.

Surgical Institute Founded.—The governor has signed the house bill providing for the establishment of a state institute where indigent children under 14 years of age may receive treatment for deformity or injury. It is to be known as the Illinois Surgical Institute and will be located on a site of 160 acres, to be donated, and will be under the management of the State Board of Administration. A second bill appropriating $60,000 for buildings for the new institute and $15,000 for furnishing and equipment was also signed by the governor.

National Guard Surgeons Meet.—At the annual meeting of the Association of Military Surgeons of the State of Illinois, held in connection with the meeting of the National Guard Association, July 29, in Chicago, Brigadier General Charles Adams, surgeon general, was elected president; Major Thomas J. Sullivan, assigned Seventh Infantry, vice-president, and Major Samuel C. Stanton, secretary to surgeon general, secretary and treasurer, all of Chicago. Major Thomas C. McCord, Paris, assigned Fourth Infantry, and Daniel W. Rogers, Chicago, chief sanitary officer, and Captain Arthur F. Wilhelmy, assigned Fifth Infantry, presented reports of their respective tours of duty at the maneuver division on the Mexican frontier.

Chicago

Personal.—Drs. George A. Torrison, Charles M. McKenna, Truman W. Brophy, Rudolph Beck and Dr. and Mrs. Carl Beck, have sailed for Europe.——Dr. Thomas S. Crowe, county physician, resigned July 29.

INDIANA

Hospital Notes.—The cornerstone of the new wing of the Methodist Episcopal Hospital, Indianapolis, was laid July 25, with appropriate ceremonies.——The City Council of Indianapolis has passed an ordinance appropriating $105,000 for the first building of a new city hospital

Board of Health Meets.—At the annual meeting of the Indiana State Board of Health, held in Indianapolis, July 28, the two new members, Drs. John R. Hicks, Covington, and James S. Boyers, Decatur, were sworn into office. Dr. Frederick A. Tucker, Noblesville, was elected president, and Dr. T. Henry Davis, Richmond, vice-president.

Personal.—Dr. Ephraim M. Folson, Evansville, sailed for Europe, July 19.——Dr. Halsted S. Murat has been appointed physician to the Indiana Reformatory. Dr. James H. Walker, Henryville, had been appointed but refused to accept the position.——Dr. Julius E. Hiatt, New Castle, was operated on for appendicitis at the German Hospital, Chicago, July 21.——Dr. Joshua Simon, Rome City, has been appointed deputy health commissioner of Noble County.——Dr. Charles P. Cook, New Albany, is confined to his home from the effects of a punctured wound of the foot.——Dr. James A. Mattison, National Military Home, first assistant surgeon at the National Military Home, Marion, has been elected chief surgeon at the Battle Mountain Sanitarium, Hot Springs, S. Dak., vice Dr. Warren R. King, retiring after forty years in practice. Dr. William H. Braunlin, a member of the present staff, will succeed Dr. Mattison as first assistant.

MARYLAND

Baltimore

Russian Physicians Visit Baltimore.—Dr. Boris Finkelstein, Bacou, and Dr. G. Ter-Neressoff, Tiflis, are visiting the hospitals of Baltimore.

Fund Raised for Pathology.—Through the efforts of Dr. John Randolph Winslow, Baltimore, $7,500 has been added to the fund for the support of the department of pathology of the University of Maryland.

Personal.—Dr. Gideon Timberlake has been appointed clinical professor of genito-urinary diseases at the University of Maryland.——Dr. W. De Forest Olmstead is ill at the Maryland General Hospital with typhoid fever.——Dr. Arthur E. Cannon has settled in Spartanburg, S. C.——Dr. Abraham Samuels sailed for Europe, July 29.

MASSACHUSETTS

Personal.—Drs. Annie G. and John H. Doyle, Fall River, have returned after a year of study in Vienna.——Dr. Louis Edward Mannix, Chicopee Falls, has been appointed assistant medical examiner of the Chicopee district.

Bequests.—By the will of the late Alice S. Truscott, Dorchester, $5,000 is devised to the New England Deaconess Hospital.——The late Nathaniel Taylor in his will bequeathes $50,000 to the Massachusetts General Hospital; $10,000 to the Boston Lying-In Hospital, and $5,000 to Clinton Hospital.

MICHIGAN

Health Train Starts.—The Michigan Health Board of Exhibit started on its first trip over the state August 1, promulgating facts regarding typhoid fever, tuberculosis, infant mortality and general sanitation to the people of the state.

Personal.—Dr. Ralph E. Balch, Kalamazoo, who has been critically ill in Bronson Hospital with septicemia, is reported to be improving.——Dr. Elizabeth M. Hooper, Port Huron, has been reappointed chairman of the supreme medical board of the Ladies of the Maccabees of the World.

County Society Meets.—At the annual meeting of the Branch County Medical Society, which was held in Coldwater, July 19, the following officers were elected: President, Dr. William H. Baldwin, Coldwater; vice-president, Dr. Bert Wilson Culver, Coldwater; secretary-treasurer, Dr. Samuel Schultz, Coldwater; delegate to the state medical society, Dr. Henry W. Whitmore, Quincy, and alternate, Dr. Ernest E. Hancock, Girard.

Recent Measures and Plans Instituted by the State Board of Health.—The secretary of the State Board of Health announces the following measures and plans recently instituted by the board. A health train equipped with a large collection of charts, models, demonstrations, etc., relating to preventive medicine, will make a trip throughout the southern section of the state early in August; a pamphlet has been printed to be used by the teachers in public schools as an instruction manual on the physical examination of children, with especial reference to defective conditions of the eye, ear, nose, mouth and throat; the resolution forbidding the use of the common drinking cup in railroad cars, depots, schools, etc., is being enforced; an expert in the study of eugenics has been employed to make a careful study along this line; a permanent educational committee has been appointed to plan, arrange and hold sanitary institutes, engage lecturers, etc., in the interest of preventive medicine. Ten state sanitary conventions will be held throughout the state during the winter; the secretary has commenced the publication of a weekly bulletin; plans have been made for a series of health officers' conventions; and provision has been made for a medical inspector to work especially in the investigation of water, milk and other food supplies.

MINNESOTA

Minneapolis Physicians Endorse Wiley.—At the meeting of the Hennepin County Medical Society, July 19, a resolution was unanimously adopted setting forth that Dr. Harvey W. Wiley has accomplished work of inestimable value to the country in restraining the output of adulterated and impure food, and that he is exceptionally fitted to carry on the work, protesting against the summary removal of Dr. Wiley; expressing its complete confidence in Dr. Wiley as to fitness and ability and directing that a copy of the resolution be placed in the hands of the proper authorities in Washington, and in the hands of the congressmen and senators of Minnesota.

MISSOURI

Clinics at Kansas City.—The medical staffs of various hospitals of Kansas City have invited the medical profession of the Southwest to attend morning clinics in medicine, surgery and special branches, which will be held at the various hospitals of the city, and to be present at the afternoon meetings to be conducted by members of the staffs of the hospitals during the festival of the Priests of Pallas, October 3-10. These opportunities are to be offered without expense to physicians. The headquarters of the clinic will be at the Kansas City Medical Library, on the thirteenth floor of the Rialto Building, Ninth Street and Grand Avenue, and further information may be obtained at the above address from the clinic secretary.

St. Louis

Barnes University to Continue.—It is reported that the foreclosure sale of the Barnes University property has been canceled, the first mortgage of $45,000 has been paid, and that the college will open as usual this fall. A consolidation with one or two of the other medical colleges of St. Louis is still under consideration.

NEW JERSEY

North American Sanitarium Opens.—The North American Children's Sanitarium for the Treatment of Surgical Tuberculosis, in Ventnor, will be ready for reception of patients shortly and will be open the entire year. The institution will be under the direction of an executive committee composed of three Philadelphia physicians, Drs. H. Augustus Wilson, John Carnett and William L. Rodman. Dr. John C. Tull of Atlantic City will be the resident surgeon and the consulting staff is composed of physicians of Camden, Philadelphia and Atlantic City.

New Hospital.—A meeting regarding the organization of a new hospital was held at the office of Dr. Edwards, Leonia, July 21, at which twenty-five physicians were present. The committee on management outlined a plan which was approved and the committee on incorporation replied that incorporation would soon take place. The corporation will be known as the Bergen County General Hospital and the corporators will be Drs. Max Wyler, Fort Lee; Samuel T. Hubbard, Edgewater; John Edward Pratt, Dumont; Frederick S. Hallet, Hackensack; Michael J. Sullivan, Englewood; J. R. Edwards, Ellsworth E. Conover, Hasbrouch, and Frank Freeland, Maywood. The following trustees were elected for the first year: Dr. J. Finley Beel, Englewood, president; Dr. George P. Pitkin, Schroon Lake, N. Y., Bergenfield, secretary, and Drs. Ellsworth E. Conover, Hasbrouch, Philip Edwin Brundage, Grantwood; Max Wyler, Fort Lee; Joseph S. Van Dyke, Palisades Park; James Malcolm McKellar, Tenafly; Charles Albert Richardson, Closter; Frederick S. Hallet, Hackensack; Edwards, Leonia; J. R. Edwards; John Edward Pratt, Dumont; Frank Freeland, Maywood; James Talmage Wyckoff, Leonia; Samuel T. Hubbard, Edgewater; Guy Otis Brewster, Grantwood; Henry Charles Elsing, Ridgefield Park; and Edward Newell Huff, Englewood. The committee on location was continued and the committee on management was enlarged and instructed to prepare a constitution and by-laws.

NEW YORK

Vetoes Drinking-Cup Bill.—Governor Dix has vetoed Mr. Carew's measure providing for the doing away with public drinking cups.

Monthly Bulletin to be Sent Physicians on Application.—The department of health's *Monthly Bulletin* hitherto has been distributed to a limited mailing list of officials, institutions, publications and persons interested in sanitary problems. The demand for copies has been so great, however, that the department has been obliged to increase the monthly issue. Physicians resident in the city of New York, who desire to receive free copies of the bulletin regularly, should apply in writing to the Editor, Monthly Bulletin of the Department of Health, Fifty-Fifth Street and Sixth Avenue. The names of such physicians will be placed on the mailing list in the order of application.

New York City

Leave for Europe.—Drs. William V. Dee, Brooklyn, and Maude J. Frye, Buffalo, have sailed for Europe.

Benefit for Infant Asylum.—A benefit performance given at Averne, L. I., netted $10,000 for the Hebrew Infant Asylum.

Bequests.—Under the will of the late Alfred Krower, Mount Sinai Hospital receives $2,000, the Montefiore Home, $2,000, and Beth Israel Hospital, $1,000.——The Flushing Hospital, L. I., will receive $2,000 from the estate of Benjamin Wooley of Little Neck.

Exhibit of National Child Labor Committee.—This organization has opened an exhibit in New York City which demonstrates by means of photographs, statistics and graphic illustrations the conditions and effects of child labor in factories. The object of the exhibit is to affect public sentiment so as to influence the legislature to pass laws prohibiting child labor.

Ban on Nostrum Advertising.—In the surface cars of this city appears the following notice: "Fraudulent misrepresentation of the curative value of nostrums not only operate to defraud passengers, but are a distinct menace to the public health. (President Taft in a recent message). No patent medicines are advertised in the surface cars of New York City."

Asks Money for Milk Stations.—Commissioner Lederle has sent an urgent request to the Board of Estimate for a special issue of revenue bonds amounting to $10,125 to care for the increased number of mothers and babies coming to the milk stations. As many as 9,127 babies have come to the milk stations in one day. It is stated that as many as 40 per cent. of those coming to the stations are ill and Dr. Lederle says that he needs ten medical inspectors in addition to the five of the present staff and also ten additional nurses, as one nurse can care for only about seventy-five babies, whereas some are now attempting to care for from 200 to 300.

NORTH CAROLINA

Portrait Bought.—A portrait of Dr. L. F. Dixon, Shelbyville, has been bought by his friends and will be placed in the State Library, Raleigh.

Install Laboratory.—The Charlotte Sanatorium has completed and installed a chemical and pathologic laboratory which will be under the care of Dr. Addison G. Brenizer, Jr., who has recently returned from Europe.

Buncombe Physicians Endorse Wiley.—The Buncombe County Medical Society at its regular meeting, July 17, adopted resolutions endorsing Dr. Harvey W. Wiley and urging the President to retain his valuable services.

Dinner to Railway Surgeons.—Dr. Robert L. Payne, formerly of Lexington, chief surgeon of the Norfolk and Southern Railway, entertained the surgeons of the road at a shore dinner, Morehead City, July 17. Covers were laid for fifty-four.

Health Officer Threatened.—Dr. Charles T. Nesbitt, health officer of Wilmington, who has been making strenuous efforts in the direction of municipal sanitation, has received an anonymous letter containing indefinite threats unless he resigns or changes his attitude.

Personal.—Dr. Alice E. Johnson, Asheville, has accepted the superintendency of the American Hospital, Lauta, Egypt, and has placed her practice in charge of Dr. Florence Stone, Chicago.——Dr. James J. L. McCullers, McCullers, has been elected superintendent of health of Wake County.——Dr. Richard Henry Lewis, Raleigh, has been elected president of the North Carolina State Audubon Society.

OHIO

Resolutions of Respect.—At a special meeting of the Logan County Medical Association, held in Bellefontaine, resolutions were unanimously adopted expressing the sorrow of the members at the death of Dr. Benjamin B. Leonard, West Liberty, and expressing heartfelt sympathy with his family.

Ill and Injured.—Dr. Russell C. Edwards, West Carlisle, was seriously injured in a runaway accident, July 19.——Dr. Earle B. Downer is reported to be ill at his home in Columbus, as a result of heat prostration.——Dr. Frank P. Letherman, Ostville, is a patient at Grant Hospital, Columbus, suffering from a fracture of the arm sustained while cranking his automobile.——Dr. Alva G. Ray, Byer, was painfully injured in a runaway accident, July 12.——Dr. James J. McClellan, Columbus, who was operated on for septicemia recently, is reported to be improving.

Personal.—Dr. S. A. Douglass, Mansfield, has been appointed acting superintendent of the Ohio State Sanatorium for Tuberculosis, Mount Vernon.——Dr. George M. Cummins has been appointed a member of the Civil Service Commission of Hamilton.——Dr. John W. Birk, a member of the Bucyrus Board of Health, has resigned.——Dr. Floyd Miller, Delaware, has been commissioned first lieutenant in the Ohio National Guard and assigned to duty with the Fourth Infantry.——Dr. J. B. Kotheimer, Youngstown, has been appointed medical examiner for the Ohio State Sanatorium for Tuberculosis.

Cincinnati

Endowment Fund for the Medical Department.—By the will of the late Dr. Francis Brunning, there is devised to the Medical Department of the University of Cincinnati a sum estimated at $50,000 to be known as the Francis Brunning Medical Endowment Fund.

Personal.—Dr. Edward W. Walker has resigned from the staff of the City Hospital.——Dr. Samuel B. Grimes has started for Europe.——Dr. Martin H. Fischer, Eichberg, professor of physiology at the University of Cincinnati, has been awarded the Cartwright prize of $500 offered by the Alumni Association of the College of Physicians and Surgeons, New York City, for his research work on nephritis.——Dr. and Mrs. William L. Milner were severely injured in an automobile accident at Cleves, July 23.

PENNSYLVANIA

Police Surgeons Organize.—The Association of Police Surgeons of the Department of Public Safety of Pittsburg was organized July 21. Dr. Frank Kenworthy was elected president and Dr. Donald G. Lereh, secretary.

Health Bulletins.—Among the recent titles of the bulletins of the State Department of Health are "Some Duties, Ideas and Opportunities for the Country Doctor Developed;" "Malaria, How It Is Brought on and How to Get Rid of It;" "Health;" "The Common Fly, How It is Developed, Why It Must be Destroyed and How to Destroy It."

Physician Endows Library.—By the will of the late Dr. J. Smith, Hanover, he devised his entire estate, valued at about $50,000, toward the endowment of a library for Hanover. A citizen of the town has given a building, which is just completed and the local physicians have undertaken to develop a medical reference section, as a memorial to Dr. Smith.

Lehigh Valley Physicians Meet.—At the annual meeting of the Lehigh Valley Medical Society, held at the Delaware Water Gap, July 21, seventy-five members were present and the principal papers were read by Drs. Joseph C. Bloodgood, Baltimore, and Dr. Henry H. Herbst, Allentown. The following officers were elected: President, Dr. Charles B. Smith, Washington, N. J.; vice-presidents, Dr. Edwin H. Kistler, Lansford, Dr. Franklin P. Lytle, Birdsboro, and Dr. James L. Hornbeck, Catasauqua; secretary, Dr. John W. Luther, Palmerton; assistant secretary, Dr. J. H. Santee, Palmerton, and treasurer, Dr. Albert A. Seem, Bangor.

Philadelphia

Rigid Examinations of Incoming Steamers.—All steamers entering this port are rigidly examined to prevent cholera. The steamer *Cassel* from Bremen, which arrived July 26, had no cases of cholera, but three cases of measles were found and the patients were detained at quarantine. The steamship *Prinz Adelbert*, which docked on July 28, handed in a clean bill of health, but all edibles carried by steerage passengers were confiscated.

Personal.—Dr. Judson Daland is spending the summer in Germany.——Dr. Frederick W. Steinbock is taking a post-graduate course in Berlin.——Dr. John A. Kolmer has been elected professor of pathology, and director of laboratories in the Philadelphia Polyclinic and College for Graduates in Medicine.——Dr. Josiah H. Penniman (vice provost of the University of Pennsylvania) has sufficiently recovered from his recent operation to leave the University Hospital and has gone to Boston to spend the summer.——Dr. Harvey Shoemaker sailed for Europe, July 26

University Medical School Moves.—After occupying Logan Hall at Thirty-Sixth and Woodland Avenue for thirty-seven years, the medical school of the University of Pennsylvania is moving to the medical laboratory in the botanic gardens. Logan Hall, one of the first of the university buildings to be erected in West Philadelphia, was built in 1874. After the completion of the new medical laboratory in 1904, the medical school began gradually to move from Logan Hall. Up to this summer the fourth floor of that building was still used for histology, anatomy and embryology, the other floors being occupied by the Wharton School of Political Economy.

Milk Firm Fined.—Joseph Gravenstine and Joseph Miller, trading as Gravenstine and Co., are said to have been fined $25 and costs, July 25, for selling cream containing a percentage of butter fat under the standard set by the Piper Milk and Cream Act, passed by the last session of the state legislature. This firm is said to have been also fined $60 and costs for selling butter containing a larger percentage of moisture than provided for by law. The cream had been represented as containing 22 per cent. butter fat, when it had but 12 per cent. and the law requires 18. Charles H. LeWall (chemist for the dairy and food department) found the butter to contain 37 per cent. moisture, while the pure food law places 16 per cent. as the limit.

Dumping of Milk Denounced.—At a special session of the Interstate Milk Producers' Association held in the Parkway Building, July 26, the action of the city health authorities in destroying quantities of milk over the temperature requirement of 60 degrees, was denounced and the following resolution was passed:

> That a permanent committee be appointed to take up the matter of dumping milk with a competent attorney and find out our legal standing, and, if advice warrants it, to obtain an injunction to restrain the Board of Health from destroying this milk, and we recommend that a collection be taken to start this matter, and that the secretary be instructed to notify the presidents of all the branch associations to take up collections from all persons interested to help defray these expenses.

On July 28, 340 quarts of milk were dumped by the inspectors, of which 200 quarts had been brought to the city by the Reading Road and 140 by the Pennsylvania. This makes a total of 13,289 quarts condemned. The Philadelphia and Reading Railroad Company has been served with formal notice of complaint by the State Railroad Commission in regard to the failure of the companies to refrigerate cars in which milk is shipped. The complaint was entered by the milk dealers of this city, who have been losing thousands of quarts of milk on this account.

VIRGINIA

Limit Stay at Sanatorium.—In consideration of the limited means at the command of the State Board of Health for the prosecution of the fight against tuberculosis it has been decided to limit the term of treatment at the State Sanatorium, Catawba, to six months. The resident physicians are to be allowed to make exceptions to this rule in cases where it is deemed advisable.

Offers to Transfer Hospital to City.—Mr. John L. Williams, Richmond, president of the Charlotte Williams Memorial Hospital Corporation, has offered to transfer that institution to the city of Richmond on condition that the city shall assume the debt on the hospital, which amounts to $40,000, and that it provide for the efficient maintenance of the hospital as a charitable institution.

Personal.—Dr. Ennion G. Williams, state health commissioner, is reported to be ill with parotitis.——Dr. R. C. Carnal, Belona, has resigned from the Hookworm Commission and has been succeeded by Dr. Herman Gose Tartar, Wytheville.——Dr. C. H. Fowlkes, Richmond, has been appointed assistant resident physician at the Catawba Sanatorium.——Dr. George Ben Johnston, Richmond, is suffering from a slight attack of ptomaine poisoning.

Changes in County Boards.—At the meeting of the Virginia Board of Health, July 1, held at Catawba Sanatorium, the following changes were made in the county board of health: Gloucester County, Dr. Merritt Wood Healy, Bena, vice Dr. Frederick F. Davis, Sassafras. Richmond County, Dr. Robert Oliver Lyell, Warsaw, vice Dr. H. Launcelot Segar, Warsaw. Westmoreland County, Dr. G. Preston Hundley, vice Dr. Richard Henry Stuart, Norfolk; Dr. G. R. Harris, vice Dr. S. M. Asherton. Henrico County, Dr. Berkley Hancock Martin, Rio Vista, vice Dr. William A. Deas, Richmond. Dinwiddie County, Dr. I. W. McDowell, vice Dr. William Samuel Briggs, Dinwiddie. Lunenburg County, Dr. Walter E. Vest, Richmond, vice Dr. C. P. Cappa. Nottaway County, Dr. William Warren, Jr., vice Dr. William V. Atkins, Blackstone. Surry County, Dr. Joseph Henry Parker, Dendron, vice Dr. William W. Seward, Surry. Montgomery County, Dr. Henry B. Pack, McDonalds Mill, vice Dr. P. B. Elliot, Blacksburg. Greene County, Dr. William E. Brown, Sheppards, vice Dr. E. W. Simms. Buchanan County, Dr. W. E. Ridder, vice Dr. R. P. Whitehead; Dr. O. E. Weatherly, vice Dr. J. H. Smith. Pulaski County, Dr. Cooper Dave Kumkle, Pulaski, to fill a vacancy. Washington County, Dr. Teeter of Abingdon, vice Dr. William Leslie Davenport, Meadowview. Bath County, Dr. Frank Hopkins, Hot Springs, vice Dr. M. Edwards.

WISCONSIN

Gift to College.—The dean of the Wisconsin College of Physicians and Surgeons, Milwaukee, announces that an anonymous benefactor has given $5,000 to the maintenance fund of the college.

Baby Station Staff Appointed.—The baby station of the Childs' Welfare Commission of Milwaukee was opened July 23. Dr. Albert W. Meyer is announced as director and Drs. Frank R. Wasielewski, Tomkiewicz, Carl Wagner, J. H. Shulz, Drozniekewicz, Henry J. Gramling, John N. Rock, Jessie Bernoski, Mina B. Zimmerman and Helen Hogan are the members of the staff.

Alumni Election.—At the annual meeting of the Alumni Association of the Medical Department of Marquette University, held in Milwaukee, July 12, the following officers were elected: Dr. William V. Nelson, Milwaukee, president; Drs. Albert E. Mieding, Milwaukee, and Henry W. Morgenroth, Oshkosh, vice-presidents; Dr. George Henry Belding, Milwaukee, recording secretary; Dr. T. W. O'Donovan, Milwaukee, financial secretary; Dr. Walter Hopper Neilson, Milwaukee, treasurer, and Drs. Daniel Hopkinson, Frederick W. Riehl and Edward Blaine, all of Milwaukee, councilors.

Personal.—Dr. John V. R. Lyman, Eau Claire, fractured two ribs and was otherwise injured in an accident between his automobile and a trolley car, July 23.——Dr. George R. Ernst, Milwaukee, has been appointed superintendent of the Blue Mound and Greenfield municipal tuberculosis sanatoria.——Dr. Adelmann B. Manley, Shopiere, was operated on for appendicitis at the Beloit Hospital, July 23.——Dr. William Judson Allen, Beloit, injured his right arm while cranking his automobile, July 23.——Dr. Edgar D. Ford, Cambria, has purchased 62 acres of land on Trout Lake and will establish a sanitarium and hospital.——Dr. Harry O. Delaney, Beloit, who fractured his knee in an automobile accident, July 16, is reported to be improving.

GENERAL NEWS

New Ophthalmologic Officers.—At the annual meeting of the American Ophthalmologic Society held in New London July 11-12 the following officers were elected: President, Dr. Edward Jackson, Denver; vice-president, Dr. Myles Standish, Boston, secretary-treasurer, Dr. William M. Sweet, Philadelphia (reelected), and corresponding secretary, Dr. Arnold Knapp, New York City.

Illinois and Iowa Physicians Meet.—The annual meeting of the Illinois and Iowa Central District Medical Society was held at Davenport, Iowa, July 13, jointly with the Scott County Medical Society, and the following officers were elected: President, Dr. George E. Decker, Davenport; vice-president, Dr. Wilton W. Adams, Atkinson, Ill.; secretary, Dr. Lawrence W. Littig, Davenport, and treasurer, Dr. Frank H. First, Rock Island, Ill.

Fraternal Medical Directors Meet.—At the annual meeting of the Medical Section of the National Fraternal Congress, held at Cambridge Springs, Pa., July 24, the following officers were elected: president, Dr. Elmore S. Pettyjohn, Knights and Ladies of Security, Topeka, Kan.; vice-presidents, Drs. Frederick F. Edmister, Knights of the Maccabees of the World, Detroit, and Charles C. Clancy, Catholic Mutual Benefit Association, Port Huron, Mich.; secretary, Dr. Walter P. Grimes, Fraternal Aid Association, Kansas City, Mo., and treasurer, Dr. Elizabeth M. Hooper, Ladies of the Maccabees of the World, Port Huron, Mich.

FOREIGN NEWS

Tribute to Rommelaere.—The friends of Dr. Rommelaere, professor of histology at the university of Brussels, Belgium, wished to celebrate the fiftieth anniversary of his entering on his professional career, but he declined any ceremony beyond the presentation of a written address. Copies of the address prepared have been placed in a leading bookstore in the four larger Belgian cities, and all the friends and admirers of Dr. Rommelaere are asked to step in and affix their signatures. The four copies are then to be presented to him, as the "Manifestation Rommelaere."

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 22, 1911.

The Royal Commission on Tuberculosis

The royal commission on tuberculosis appointed in 1901—after Koch's famous pronouncement that human and bovine tuberculosis are distinct diseases—to investigate the question, has at last issued a final report. The members of the commission were well-known authorities, some of whom, such as the late Sir Michael Foster, professor of physiology at Cambridge, and the late Sir Rubert Boyce, professor of pathology at University College, Liverpool, have now passed away. The other members were Dr. Sims Woodhead, professor of pathology at Cambridge, Dr. Sydney Martin, professor of comparative pathology at University College, London, and Sir John McFadyean, professor of comparative pathology at the Royal Veterinary College. On the decease of the chairman, Sir William Power, chief medical officer to the local government board, was appointed his successor. The commission was instructed to inquire into three questions:

1. Whether tuberculosis in man and animals is the same disease.

2. Whether man and animals can be reciprocally infected.

3. Under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favorable, or unfavorable, to such transmission.

The inquiry was conducted on a large scale for a considerable time on two farms by the agency of several highly skilled assistants. In 1904 a first interim report was published stating that the bacilli of human tuberculosis had produced in cattle, contrary to Koch's statement, a disease indistinguishable from bovine tuberculosis. A second interim report was issued in 1907. It showed that fatal cases of human tuberculosis had been due to the typical bovine bacillus, but that all such cases examined were examples of mesenteric tuberculosis in children. A third interim report, issued in 1909, dealt with the conditions under which cows' milk is infective.

The final report confirms the work of the previous ones, except that the possibility of modifications of the two types of tubercle bacilli suggested in the second report, has not been confirmed. It is now stated that both human and bovine tubercle bacilli may be present at the same time in man, but only the bovine bacillus has been found in cattle. The bovine, human, and avian types of tubercle bacilli have all been found in natural tuberculosis in pigs, either alone or mixed. It has been proved that fatal cases of phthisis in adults may be caused by the bovine bacillus. This is important, since Koch, while three years ago accepting the statement of the commission as to fatal mesenteric tuberculosis being caused in children by the bovine bacillus, still held that all cases of phthisis in the adult were due to the human bacillus alone. The human and bovine types of bacilli are found to be morphologically indistinguishable, although different in their cultural and pathogenic properties. The human type showed a greater luxuriance of growth on all the media employed. But the bovine bacilli varied considerably in luxuriance of growth, and the gap which separates those which grew most abundantly from the human type is not wide. The bovine bacillus produces a fatal tuberculosis in cattle, rabbits, guinea-pigs, chimpanzees, monkeys, goats and pigs. The human bacillus readily produces a fatal tuberculosis in guinea-pigs, chimpanzees and monkeys, but causes, even when administered in large doses, only slight and non-progressive lesions in cattle, goats and pigs. Its effect on rabbits is not uniform; in the majority of cases these animals are only slightly affected, in others extensive and fatal tuberculosis is produced. But guinea-pigs, chimpanzees and monkeys are all highly susceptible to the effects of either the human or the bovine tubercle bacillus, and the diseases produced in these animals by both types are histologically and anatomically identical. No anatomic or clinical difference could be found in the cases of fatal tuberculosis in man, produced by the bovine and the human bacillus. Man must therefore be added to the list of animals notably susceptible to bovine tubercle bacilli. Only by slight cultural differences could the question be decided, whether the tuberculosis was due to the human or the bovine type of bacillus. The commission regards the two types as varieties of the same bacillus. On the question whether avian tuberculosis is the same as bovine or human, the commission states that there is not sufficient ground for an answer.

The second question, whether animals and man can be reciprocally infected with tuberculosis, is pronounced to be exceptionally difficult, for, though the liability of animals to infection from man could be experimentally tested, man's liability to infection from animals must remain a matter for inference. The three types of bacilli were introduced into a variety of animals, and the conclusion was that the bovine type of bacillus is more virulent than the human, but that speaking generally, mammals and man can be reciprocally infected.

The third question is under what conditions, if at all, transmission of tuberculosis from animals to man takes place. Man has been multiplying the human type of bacillus, to which he is most prone, in the bodies of other animals and thus increasing his chance of tuberculosis; but animals, domestic or other, capable of suffering from severe generalized tuberculosis of the human type, are comparatively few, and none of them are common food animals. The bovine animal, for instance, is not an active multiplier of the human bacillus, being highly refractory to this infection, and the cow herself, however prone she may be, when the subject of bovine tuberculosis, to excrete bovine bacilli in her milk, has never under natural conditions been convicted of eliminating in this way the human tubercle bacillus. Experimentally, it is true, the human bacillus has been made to appear in the milk of the cow and goat, but for securing this end, very large doses of culture have been requisite. Probably only when the cow or goat has received a large dose of tuberculosis material, derived from man, does the human bacillus escape into the blood-stream of the animal, reach her milk sinuses, and become eliminated with her milk. Nevertheless, it cannot be affirmed that man is wholly free from risk of infection through animal food with that type of bacillus to which he appears most prone, though the degree of danger is undetermined. The pig, though not capable of fostering the human type of bacilli except in a minor degree, may still be a possible source of the disease caused by that type in man, for particular glands of the pig's body, which are likely to enter into certain prepared foods, do on occasion yield bacilli of the human type. Moreover, pigs are, besides cattle, the only animals commonly used for food in which the bovine tubercle bacillus is found producing the progressive lesions of the natural disease. The commission found this bacillus in a sufficient number of cases of swine tuberculosis, to justify them in calling attention to the danger. Bovine tubercle bacilli are infective to human beings, and there is no reason to suppose that they can be rendered less so by previous residence in the bodies of pigs. In 128 cases of fatal tuberculosis in the human adult, especially in lung cases, the lesions were due, with few exceptions, to human bacilli. In abdominal tuberculosis it was very different, especially in children. Of young children dying from primary abdominal tuberculosis, nearly one-half of the cases could be referred to the bovine bacillus, and to that type alone, and there can be no doubt that a considerable proportion of the tuberculosis affecting children is of bovine origin, especially that which affects primarily the abdominal organs and cervical glands. Nor can there be any doubt that primary abdominal tuberculosis, as well as tuberculosis of the cervical glands, is commonly due to the ingestion of tuberculous infective material. A considerable portion of this material is declared to be infected milk.

PRACTICAL CONCLUSIONS

The commission declares the necessity for legislation to prevent the transmission of bovine tubercle bacilli by means of food. The existing regulations for the supervision of milk should be enforced. Bovine tubercle bacilli are found to be abundantly present in the milk sold to the public, when there is tuberculosis of the udder. Though this is well known, it is not adequately guarded against. Moreover, bacilli may be present in the milk of tuberculous cows which show no evidence of disease of the udder even when examined post mortem. Further, milk not containing bacilli as it leaves the udder, may become infected by being contaminated with discharges of a diseased animal. The report expresses conviction that measures for securing the prevention of ingestion of contaminated milk would greatly reduce the number of cases of abdominal and cervical gland tuberculosis in children, and that such measures should include the exclusion from the food-supply of the milk of the recognizably tuberculous cow, irrespective of the disease. The amount of work done by the commission may be gathered from the fact that, in addition to the four bulky reports referred to, there are eleven volumes of appendices in which every detail of the procedure is available for the guidance of future inquiry.

The expenditure of the commission to date has been $380,000. It is reported that fresh legislation against tuberculosis, based on the commission's report, will be immediately proposed by the government

The National Insurance Bill

The struggle between the profession and the government, with regard to the medical part of the national insurance bill, does not seem to be perceptibly nearer to settlement. Indeed, the British Medical Association has just issued application to the whole profession for support of a "central insurance defense fund" to be applied for the maintenance of the interests of the profession. Under the designation of a "war fund," I announced the probability of the foundation of this fund in a previous letter to THE JOURNAL. The objects of the fund are two-fold: (1) to assist in defraying the heavy administrative expenses which are necessary both to secure amendments to the insurance bill demanded by the profession, and to organize the profession with a view to such action as may be found necessary in the event of the bill becoming law; and (2) to provide compensation or pecuniary assistance for practitioners who, in the event of the bill becoming law, may incur loss or may require support in respect of action taken through loyalty to the profession. All expenses in connection with the campaign have been defrayed up to the present by the British Medical Association out of its general funds. Many members of the association have indicated, however, their desire to contribute specially to the expenses of the campaign, and members of the profession who are not members of the association have also sent contributions, stating that they feel that the entire cost of the campaign should not be allowed to fall on the association. Though the efforts of the profession have induced the government to agree to several of the points demanded (described in previous letters to THE JOURNAL), two of the most important are still unsettled—the income limit of the insured and freedom from friendly society control. If the bill should pass in an unsatisfactory form in these two respects, it will be necessary to use the existing union of the profession for the purpose of still enforcing its demands under the bill as enacted. In these circumstances, some physicians might be threatened with such pecuniary difficulties as they could not face, and the interests of the profession might demand that they should be duly compensated or supported during the struggle. Moreover, although the profession should succeed in securing amendments of the bill meeting every point which is possible, questions of the greatest importance would still require adjustment, especially as to the method and amount of remuneration of the doctors who enter into arrangements for attendance on the insured. Although these questions from their nature must be settled by local agreement, the profession in each district must be supported by the profession as a whole, and cases will doubtless arise in which compensation or assistance to individuals must be given. Finally, the case of those who now hold contract practice appointments may demand special attention. Attempts may be made to induce present holders of such appointments to continue in office when the societies with which they are connected become approved societies under the bill, or inducements may be held out to them to retain existing appointments under organizations which may not become approved societies and which the profession may regard as unsatisfactory. As the act does not come into force until May, 1912, and medical benefits do not begin until six months later, claims for compensation will probably not arise till the latter part of 1912. The association has therefore decided that contributions should take the form of guarantees, a small proportion of which may be called up at the discretion of the council of the association to meet administrative expenses, while the balance will be called up only as required. The council now applies to the profession for a guarantee fund of $750,000. To raise this sum an average guarantee per doctor of £25 is necessary. Those whose incomes are below the average cannot be expected in all cases to guarantee this amount. The average can therefore be maintained only by the more prosperous guaranteeing higher amounts. A form of guarantee has now been sent to all doctors with a request to pay $1 down. A memorandum stating the case for the profession has been issued by the British Medical Association in consequence of representations made to it by members of Parliament. It points out (1) that the doctors differ from most persons whose interests have to be considered in connection with the bill; (2) that they are a body of potential employees on whose efficiency the attainment of the objects of the bill depends to a large extent; (3) they are also a body whose present means of livelihood would be seriously injured by the operation of the bill. They recognize that in the public interest some state interference with the existing conditions of medical practice are inevitable and they are willing to fall in with such proposals, so far as is necessary. On the other hand, they ask that the interference shall not be carried beyond the point necessary for the achievements of the public objects of the bill. The section of the community whose incomes exceed $10 a week can afford to and do employ doctors in a very large proportion of cases. There is therefore no necessity for state interference to obtain for them medical attendance. If they require any assistance, it is only as regards the attendance necessary in cases requiring special skill and institutional treatment. The treatment of disease by the ordinary medical attendant of a patient can be carried out with most benefit on the lines of private practice. Hence a large proportion of the members of the friendly societies, though entitled to contract attendance, at present prefer to pay a private doctor.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 21, 1911.

Appointments at the Paris Medical School

The Council of the Faculté de médecine, a few days ago, held elections to recommend candidates for various chairs. For the chair of internal pathology, resigned by Professor Dejerine in favor of that of clinical neurology, Dr. Teissier, an *agrégé* professor, was recommended to the ministry of public instruction. For the chair of physics the Council recommended Professor Weiss, *chef des travaux pratiques*, to succeed Professor Gariel, who has retired. For the chair of history of medicine, resigned by Dr. Chauffard, who was appointed professor of clinical medicine, the Council recommended Dr. Maurice Letulle, who is well known for his works on pathologic anatomy. Unfortunately when the chair of pathologic anatomy was vacant over two years ago through the death of Professor Cornil, the place was filled by the nomination of Dr. Pierre Marie, who had devoted himself for a long time to neurology. Hence, instead of applying the principle of "the right man in the right place," we have a distinguished neurologist teaching pathologic anatomy and a pathologic-anatomist, who instead of teaching pathologic anatomy is about to give a course in the history of medicine.

Election of Two National Associates at the Academy of Medicine

On July 4 the Académie de médecine elected two national associates, Dr. de Brun, professor of pathology and clinical medicine at the Faculté catholique et française de Beirut, and Dr. Herrgott, professor of clinical obstetrics at the Faculté de médecine de Nancy.

Personal

On July 10, Dr. Renaut, professor of general anatomy and histology at the Faculté de médecine de Lyon, was elected national correspondent for the section of zoology and medicine of the Académie des sciences to replace the deceased Professor Sabatier.

Measures Against Cholera

The prefect of police of Paris has just addressed to all physicians practicing in the Department of the Seine a circular calling attention to the situation created in France by the progress of cholera in Europe and to the duties consequently incumbent on physicians. Last year cholera affected more than 200,000 persons in Russia and caused more than 100,000 deaths. It was, moreover, found in the valley of the Danube and in several provinces of Italy. It has reappeared this year in Naples, Palermo and Venice, where the scourge has been very disquieting. All the medical congresses which were to have been held at Rome during the vacation season, including the International Congress of Tuberculosis, have been postponed until next spring. Cholera has raged also in Constantinople. It is to be feared that new centers of infection may appear in Europe, and the city of Paris, which attracts so many strangers, needs to take every precaution to defend itself. In addition to the surveillance of travelers coming from infected countries exercised at the frontier, on the lines of travel and in the railway stations in Paris, there is need of a local system of defense. It is especially important that the first suspicious case should be known without an hour of delay. The prefect of police accordingly reminds physicians that the law of 1882 in regard to the sanitary police makes it obligatory for the physician (or failing the physician, the head of the family or the lodger) to declare immediately every case of disease suspected of being cholera, without waiting for the disease to become manifest.

The municipal council of Paris has just voted the appropriation asked by the prefect of police for sanitary measures to be taken in railway stations to prevent the introduction of cholera. A rigorous oversight of immigrants is also sought to be established. The bureau of the commission of hygiene of the chamber of deputies has just represented the minister

of the interior of the urgent character of the bill with regard to the oversight of immigrants passing through or staying in France. As there was not time to put this measure to the vote before the parliamentary vacation, the government will promulgate by decree the most urgent measures recommended by the commission.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 13, 1911.

Personal

Professor R. Köhler, curator of the Augusta Hospital in Berlin, has just died, aged 70.——Professor Weber, of Halle, celebrated the semicentennial of his doctorate, July 10.——Professor Rössler, of Munich, has accepted a call to Jena as professor of pathologic anatomy.——Professor Leopold, director of the gynecologic clinic at Dresden, will resign his position October 1.

Professor E. Grawitz, director of the department of internal medicine in the municipal hospital at Charlottenburg, died in that city, July 11, of heart disease, aged 51. Grawitz, who was a brother of the pathologist of Greifswald, was originally a military surgeon, but later became prosector at the Augusta hospital in Berlin and then assistant to Gerhardt in the second medical clinic at the Charité. He was very active in a literary way and has worked in various fields of internal medicine. His principal sphere of labor was hematology, in which he make his influence felt as an original investigator. Of his published works the following are well known: his text-book on the clinical pathology of the blood, his contribution, "Diseases of the Blood and So-Called Blood-Making Organs," in the "Handbook of Practical Medicine" of Ebstein and Schwalbe and in Schwalbe's "Text-Book of Diseases of Old Age," and his "Technic of Clinical Examinations." Grawitz was much sought after as a consultant and was a man of a very kindly disposition.——July 23 Professor Waldeyer celebrated the semicentennial of his doctorate.——July 25 occurred the celebration of the seventieth birthday of the Königsberg pharmacologist, Professor Jaffé.

German Universities in the Summer Semester of 1911

Since the establishment of the empire the number of students at the German universities has regularly risen from about 13,000 until in the middle of the 80's it had already doubled and the threatened overcrowding of academic pursuits was recognized. The German student body tripled its original number by 1904, and reached in the current summer 57,230 as compared with 54,847 in the previous year. Of the entire number of students to-day 54,678 are men, 2,552 women; of these at present about 53,000 belong to the empire and about 4,300 are foreigners. A comparison of the figures for the different departments for the present and previous year and for 1906 shows what changes in the direction of studies have occurred in consequence of the influence of the needs of the state and society and especially what occupations are favored. In this respect the rapid growth of medicine as a profession is striking, the number of medical students rising from 6,683 in 1906 to 10,682 last year and now to 11,927. Nearest to them stand the students of philosophy, philology and history who number at present 16,158 as compared with 15,475 and 10,832; mathematics and natural science, 8,442 (last year 7,937, in 1906, 6,323); law, 11,023 (11,323 and 12,375); evangelical theology, 2,825 (2,507 and 2,329); of catholic theology, 1,834 (1,840 and 1,841); political economy and agriculture, 2,729 (2,406 and 1,801); pharmacy, 916 (1,147 and 1,767); dentistry, 1,046 (1,264 and 755); forestry—only matriculated in Munich, Tübingen and Giessen, 170 (123 and 114), and of veterinary surgery—only matriculated in Giessen 160 (141 and 114). According to this the number of law students has diminished in consequence of the overfilling of the profession and this is still more the case with pharmacy. The recent reduction in the number of dental students is to be attributed to raising the entrance requirements and the lengthening and increase in cost of the course.

Of the present student body 28,981 are enrolled at the ten Prussian universities as compared with 27,577 in the summer of 1910. At the three Bavarian there are 9,445, last year, 9,369; at the two Baden, 5,532 (1910, 5,279), and in the other six state schools, including the imperial at Strasburg, there are 13,222 as compared with 12,602 in 1910. The university of the metropolis stands at the head, having at present 8,039 students, including 695 women, as compared with 7,902 and 626 last year.

All the universities except Giessen have gained this year, most markedly Greifswald, Kiel, Rostock and Halle, and least, Heidelberg, Münster and the three Bavarian universities.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, July 15, 1911.

Personal

At present there are two medical posts vacant in this country: one at the clinic for internal medicine in Innsbruck, from which Ortner was called to Vienna to succeed von Strümpell, and the other at the pharmacologic institute of the German university in Prague. The latter has become vacant through Professor Pohl's acceptance of an appointment at Breslau.

The following scientists have been recommended in the order named for the vacant posts: for Innsbruck, Professor Pfeiffer from Graz, well known for his researches on serology, hematology and diseases of the lungs; Docent Dr. Schmidt (Vienna), and Professor von Tabora from Strasburg and also Professor Walks from Prague; for the pharmacologic institute, Professor Cloetta from Zurich (whose name has a very good reputation), professor Wiechowski, who is at present an assistant of Horst-Meyer in Vienna, and Professor Jodlbauer in Munich.

Warnings to Students Against Taking up the Study of Medicine

At the seventy-fifth meeting of the Central Union of German physicians in Bohemia, Dr. Fischel, the president, moved a resolution, that the students just about to enter the university should be warned against turning to medicine. "They should be informed that within the last five years the number of medical students in this country has risen from 2,509 to 5,319, that is, 112 per cent., while the number of all university students has increased by barely 40 per cent. They should also consider that fully one-third of all practitioners in Bohemia earn less than 2,000 kronen ($400) a year, and that the number of doctors has increased in the last two decades by 76 per cent.; the population, however, has increased only by 19 per cent. The new social insurance act, which will become a law within a few years, will further contribute to diminish the scope of a doctor by turning a large percentage of possible private patients into the domain of practice served by the clubs.

Therefore, the representatives of the Bohemian practitioners earnestly advise against selecting a profession which even now does not give a satisfactory outlook for those engaged in it, and which tends to become still less remunerative and satisfactory for at least twenty-five years to come." The resolution was adopted, suitable leaflets were distributed among the students and information given out to the public through the newspapers and lay publications.

The Closing of the Old Medical Clinic

With the end of the present summer term, Professor von Noorden, the director of the first medical clinic in Vienna, bade the old institute farewell in an eloquent speech to his students on its history. In a couple of weeks the new clinic in the grand new hospital will be opened, and meanwhile no new patients will be admitted to the old clinic. Since 1846, when the famous Skoda became the director of the institution, its location has not been changed. In 1872 Skoda was succeeded by Duchek, who stayed there ten years. Both these famous clinicians had to teach the students at the bedside, for there was no clinical theater or laboratory. First, when Nothnagel in 1882 was appointed to the clinic, a lecture hall was built and a laboratory added to the equipment. Since then it became a Mecca of students and nearly the entire present generation of Austrian practitioners were pupils of the famous teacher. When, after the death of Nothnagel, von Noorden, the present professor, was appointed, he did not believe that he would have to wait fully five years before he could move out of the crowded, unhealthy, narrow and antiquated clinic into a modern up-to-date institute. In the course of his speech von Noorden explained how bitterly he resented the necessity of abstaining from the application of modern therapeutics, from sheer want of space and means. Nevertheless, the results obtained in these wards were not entirely disappointing in respect to the care of patients and the teaching.

The wards to be emptied now will be used for the clinic for mental diseases and as receiving-wards for temporary observation of patients. In a few years (three or four) the entire building will be pulled down, and all the clinics will by that time already have moved to their new locations, while the space of the old hospital will be turned into streets and gardens.

Marriages

CLARENCE DAVID ROLLINS, M.D., Lake City, S. C., to Miss Pauline Manning Woodley, of Dawson, Ga., June 21.

THOMAS B. O'KEEFE, M.D., Grand Rapids, Mich., to Miss Lettie A. Whitcomb of Vassar, Mich., July 12.

WILLIAM OSCAR BAIRD, M.D., Henderson, Tenn., to Miss Birdie Wardlow, Pocahontas, Tenn., June 28.

CHARLES DELBERT GAMBLE, M.D., to Miss Mildred Margaret Welch, both of Spencerville, O., June 20.

LUCIUS C. PARDEE, M.D., Chicago, to Mrs. Anna M. Trumbull, at Old Mission, Mich., July 1.

HARRY GALLAGHER, M.D., Glenolden, Pa., to Miss Anna Healy Cuthbert, of Ridgway, Pa., July 1.

THOMAS J. WILLIAMS, M.D., Hiteman, Ia., to Miss Myrtle Welch of Pasadena, Cal., July 3.

FREEMAN ALLEN, M.D., to Miss Ethel Gibson, both of Boston, at Nahant, Mass., July 19.

PINKNEY LEE DAVIS, M.D., Baltimore, to Mrs. Grace Barker, at Philadelphia, July 20.

AUGUSTUS F. HOUSE, M.D., to Miss Helen E. Wolpert, both of Cleveland, June 26.

NATHAN HERMAN, M.D., to Miss Sadie Loeb, at Baltimore, July 9.

Deaths

Edwin Augustus Lewis, M.D. Bellevue Hospital Medical College, 1873; for several years professor of anatomy in Long Island College Hospital; a bridge commissioner of the Brooklyn Bridge for twenty years; for two years police surgeon of Brooklyn, and for two years surgeon for the fire department; surgeon of the Twenty-Third Infantry N. G., N. Y., from 1876 to 1885; visiting surgeon at the Brooklyn, Long Island, St. Katherine's and Flatbush hospitals; who retired from practice in Brooklyn in 1895; died at his home in Englewood, N. J., July 17, from cerebral hemorrhage, aged 64.

James U. Barnhill, M.D. Columbus (Ohio) Medical College, 1883; a member of the American Medical Association, American Academy of Medicine, Mississippi Valley Medical Association and Columbus Academy of Medicine; chancellor and professor of principles of surgery in the Ohio Medical University; for nine years editor of the *Columbus Medical Journal*; surgeon to Mount Carmel and the Protestant Hospital; a member of the Columbus board of education, board of health and of the local board of pension examining surgeons; died at his home in Columbus, July 27, aged 57.

Fred Albert, M.D. University of Iowa, Iowa City, 1906; a member of the Iowa State Medical Society; president of the Iowa Association of Health Officers; assistant to the chair of bacteriology in 1904, and assistant professor of internal medicine in his alma mater in 1906; associate bacteriologist of the auxiliary laboratory of the state board of health; a member of the staff of the City Park Hospital, Mason City, Ia.; health officer of Mason City and examiner for the Iowa State Tuberculosis Sanatorium; died at his home in Mason City, July 21, from typhoid fever, aged 30.

Henry V. Logan, M.D. University of Pennsylvania, Philadelphia, 1880; of Scranton, Pa.; a member of the Medical Society of the State of Pennsylvania and a fellow of the American Academy of Medicine; a member of the staff of the State Hospital of Northeastern Pennsylvania, the Pennsylvania Aural School for Deaf, and West Mountain Sanatorium for Consumptives; died in the Presbyterian Hospital, Philadelphia, July 12, from septicemia, contracted a year ago while performing a surgical operation, aged 59.

Albert G. B. Hinkle, M.D. University of Pennsylvania, Philadelphia, 1857; for many years a practitioner of Philadelphia; a member of the College of Physicians of Philadelphia and of the Philadelphia County Medical Society; died at Wood Lea Sanitarium, Ardmore, July 19, from the effects of heat exhaustion, aged 79.

Alden Gifford, M.D. Hahnemann Medical College, Chicago, 1879; for many years a practitioner of Watertown and Rome, N. Y.; died at the home of his daughter in Knoxboro, N. Y., July 19, aged 80.

John Randolph Brown, M.D. Medical College of Indiana, Indianapolis, 1882; for many years assistant superintendent of the Central Indiana Hospital for the Insane, Indianapolis; and later assistant superintendent of the East Tennessee Hospital for the Insane, Knoxville; a specialist on nervous and mental diseases, and a director of the Fletcher Sanitarium, Indianapolis; died in the home adjoining that institution, July 15, from a nervous breakdown, aged 56.

Malcolm Graham, M.D. Long Island College Hospital, Brooklyn, 1865; a member of the Michigan State Medical Society and vice-president of the Hillsdale County Medical Association; a life member of the State Horticultural Society; well known as a scientific fruit grower; died at his home in Jonesville, July 17, from the effects of an accidental fall six weeks before, aged 62.

Henry Alexander Cleland, M.D. University of Michigan, Ann Arbor, 1861; formerly president of the Detroit Academy of Medicine and a member of the staff of the Children's Free Hospital; a veteran of the Civil War in which he served as assistant surgeon of Michigan Volunteers; died at his home in Detroit, July 19, from heat exhaustion, aged 72.

John Sanford Halbert, M.D. University of Buffalo, N. Y., 1872; formerly police surgeon of Buffalo and for twenty-five years obstetrician to the Buffalo Homeopathic Hospital; resident physician of the Erie County Almshouse; died in a hospital at Rochester, Minn., July 17, after a surgical operation, aged 55.

Hugh Pitcairn, M.D. Hahnemann Medical College, Philadelphia, 1880; president of the Altoona *Tribune* Company; and Consul General of the United States in Hamburg, Germany, from 1897 to 1908; died at Hamburg, July 19, from carcinoma of the stomach, aged 65.

Sidney Mitchell, M.D. University of Michigan, Ann Arbor, 1879; a member of the Medical Society of the State of New York; for more than a quarter of a century a practitioner of Saranac, and some-time health officer of that city; died at his home, July 13, aged 58.

Michael Francis Foley, M.D. Bellevue Hospital Medical College, 1891; formerly a member of the American Medical Association; surgeon to St. Mary's Hospital, Hoboken, N. J.; died suddenly at his home in New York City, July 20, from dilatation of the heart, aged 43.

Samuel L. Jones, M.D. University of Louisville, Ky., 1894; a member of the Tennessee State Medical Association; dean and professor of physical diagnosis and diseases of the chest in Tennessee Medical College, Knoxville, died July 20, aged 57.

Edmund George Lind, M.D. Atlanta (Ga.) Medical College, 1887; of Washington, D. C.; chief fiscal officer of the Federal Reclamation Service; died at the home of his sister in Greenville, Del., July 18, a month after a surgical operation, aged 45.

Leonard E. Knapp, M.D. Cleveland University of Medicine and Surgery, 1869; for several years president of the village of Fenton, Mich.; and a member of the board of education; died at his home, July 14, from paralysis, aged 68.

Charles C. Hill (license, Arkansas, 1903); for thirty years a practitioner of Scott County, Ark., and a resident of Beauchamp; died at Brawley, Ark., July 15, from skull fracture, the result of a fall from a high porch, aged 63.

Francis Slade Pugh, M.D. Birmingham (Ala.) Medical College, 1901; of Brookside, Birmingham, Ala.; died at the home of his sister near Roxobol, Ala., July 8, from nephritis, aged 48.

James Early Finley, M.D. Medical College of Ohio, Cincinnati, 1864; a native and life-long resident of Mt. Pleasant, O.; died at his home in that village, July 14, aged 74.

James W. McKee, M.D. Western Reserve University, Cleveland, 1870; University of Wooster, Cleveland, 1872; died at his home in Blue Island, Ill., July 21, aged 66.

Charles M. Beckler, M.D. Medical College of Ohio, Cincinnati, 1889; formerly of Cincinnati; died at his home in Blanchester, O., July 12, aged 43.

Francis W. Wrinn, M.D. Yale University, New Haven, Conn., 1904; of Long Island City, N. Y.; died at his summer cottage at Cosey Beach, July 17.

Watson L. King, M.D. Cincinnati College of Medicine and Surgery, 1874; of Granville, O.; died near Bathley, Yorkshire, England, July 2, aged 63.

Samuel H. Johnson, M.D. Chicago Homeopathic Medical College, 1886; died at his home in Califon, N. J., June 26, from paralysis, aged 53.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION.]

LIQUID LIFE

W. A. Puckner and L. E. Warren

A physician wrote to THE JOURNAL that for six years one of his patients had been taking about fifty bottles annually of a preparation called "Liquid Life;" he requested information concerning the composition of the remedy. The inquiry was referred to the Association's laboratory.

The price of the preparation being 75 cents for each bottle it seemed a pity that patients like this one should continue to be separated from their money by a nostrum which, from its name and descriptive circulars, appeared to be a sham. Hence it was explained to the correspondent that if he would send an original package of the preparation to the Association's laboratory a cursory examination would be made—sufficient in all probability to show his patient the folly of her faith in the nostrum.

An original package of "Liquid Life" having been received a cursory examination of it was made, which showed that the preparation is essentially an aqueous solution of Epsom salt, containing some Glauber's salt, the mixture being sweetened with saccharin. The facts brought out by the cursory examination having shown that the preparation is an outrageous imposition on the public, it was decided to make a more complete investigation with the view of publishing the results.

On the label of "Liquid Life" the nostrum is described in part as follows (the spelling and diction being exactly transcribed):

"LIQUID LIFE
A
TRUE ANTITOXINE

This antitoxine is non-poisonous and non-alcoholic. It will expel all alcohol from the system at once, and so requires a great deal more antitoxine and time to effect a cure if any alcohol is used while taking it, but you can use whatever tobacco you have been accustomed to."

ARRESTS DISEASES AND PREVENTS THE DEVELOPMENT OF GERMS

"All contagious diseases are germ diseases, and manifest themselves first as headache, pain in the back, lassitude and rise of temperature, at this stage a few doses of the antitoxine will arrest them at once and prevent any further development of the germs, no matter what their nature may be."

THE PATIENT SHOULDN'T MEDDLE WITH THE LEUCOCYTES!

"It is important that their should be no interference with the action of the leucocytes or white corpuscles by using purgatives or drugs of any kind while taking the antitoxine. If the bowels move very freely at first they will check them later, and if they do not move, wait till they do."

A paragraph taken from the circular describing "Liquid Life" is given herewith. Considering its length, it is submitted as probably being the most faulty in diction, the most replete in false statements and the most barren of truthful suggestions of any paragraph in "patent medicine" literature.

"THE HOME PHYSICIAN

WHY LIQUID LIFE MAKES ONE

First, it is antitoxine to all contagious diseases and so removes the fear of infection from the family. If given early, acts as a preventive, given later subdues the disease; is non-poisonous and non-alcoholic; there are no reactions or bad effects from it no matter how long it is taken. It contains in itself everything with the exception of food that should be taken into the stomach to keep the family in perfect health. Children born under the influence of the antitoxine, are just splendid and remain so after birth and grow up symmetrical with a healthy body and a clear brain, for when a dose of the antitoxine is given you call into action not only one physician but millions (the Leycocties) and every one of them is a supernal surgeon and their power to restore the body to health is supreme, even in those diseases that have been found difficult to cure before, such as Pneumonia, Catarrh, Appendicitis, Blood Poison from any cause, Syphilis, Cancer, Malignant Diptheria, Erysipelas, Scrofula, Tetanus or Lockjaw, Consumption, all Fevers, Rheumatism, Womb diseases, Bright's Disease, Diabetes and other diseases called incurable. Ladies will find the antitoxine is all they require to keep themselves in perfect health, and if taken for a short time before confinement will relieve them of half the pain and danger. It can also be used externally with marvelous effect in all cases requiring outside applications, or injected into all the orifices of the body where there is disease, in fact, being a true antitoxine, it solves the problem of Health and Disease."

To those conversant with the principles of medicine the reading of the label and circulars would alone be sufficient to condemn the nostrum as a humbug. Others might, however, be impressed as strongly by this jumble of meaningless phrases and vicious misrepresentations as by a logical and truthful statement of facts.

The labels indicate that "Liquid Life" is manufactured by the T. B. Chemical Co., Newark, N. J. The preparation is a pale yellow, faintly fluorescent liquid, having a faint, peppermint-like odor and a harsh, disagreeable taste. The presence of magnesium, sodium, a sulphate and small amounts each of saccharin, zinc and quinin was demonstrated by the usual tests. Ammonium salts were absent. The absence of cocain, morphin and their derivatives and substitutes was shown.

Quantitative determinations indicated that the composition of "Liquid Life" is essentially as follows:

Crystallized quinin sulphate	0.0566	gm.	in 100 c.c.
" zinc sulphate	0.2416	gm.	in 100 c.c.
" magnesium sulphate (Epsom salt)	13.34	gm.	in 100 c.c.
" sodium sulphate (Glauber's salt) (Calculated from sodium determination)	6.17	gm.	in 100 c.c.
Saccharin			a trace.
Water (by difference) to make			100 c.c.

Secret nostrums—the so-called "patent medicines" sold to the public—are of two classes: One is harmless in itself, in that it contains but little or none of any medicinal substances and is potent for harm only in so far that it restrains the user from seeking competent treatment; the other not only keeps the sick person from receiving the treatment which is indicated but contains ingredients which, when used indiscriminately, are potent for harm. Both classes are humbugs, especially because a large price is charged for what is usually worth but a few cents. In both classes there are all degrees of humbugs. "Liquid Life" easily belongs to the second class and is an example of the worst in this class. Besides containing the poisonous ingredient, zinc sulphate, its chief ingredient is Epsom salt, the long continued use of which always does harm. When it is considered that during six years one patient consumed between $200 and $300 worth of the stuff (as sold at retail) the "degree" of the humbug may be appreciated.

In connection with the claim of the manufacturer that "Liquid Life" is "a true antitoxine" the following definitions for an antitoxin are given:

"A substance formed in the body, which neutralizes the poisonous products of a micro-organism; a defensive proteid." (Standard Dictionary).

"Any defensive proteid developed in the body as a result of the implantation of a poison, and acting as a neutralizer of the poison." (Dorland's Medical Dictionary).

In view of these definitions and of the findings of the analysis the absurdity of the claim that "Liquid Life" is "a true antitoxine" is patent.

Inasmuch as the courts have recently ruled that under the present Food and Drugs Act it is permissible to lie as to the curative properties of a preparation so long as no false statements concerning its composition are made, it would be interesting to know whether the assertion that the remedy contains "a true antitoxine" would be considered as a violation of the law; also whether the name "Liquid Life" would be held to be a false statement as to composition, or whether the learned justices would consider the name (although a deliberate lie) a permissible claim for the virtues of the remedy.

The Danger of Short and "Catchy" Titles

Several times pharmacists have dispensed "lysol," a proprietary cresol preparation, when "laxol," a castor oil nostrum, was intended. Now it is reported that "calomel" was dispensed with serious consequences when "calamus" was intended. The employment of the descriptive title "mild mercurous chlorid" or "hydrargyri chloridum mite" for calomel would have avoided this mistake. It illustrates the danger that lies in short, catchy titles.

Correspondence

Are Jews Immune to Pellagra?

To the Editor:—It is well known that the Jews show a marked racial tendency to disease of the skin. Possibly for this reason, in twenty years of dermatologic practice, though not of that race, I find that a large proportion of my patients have been Jews. In the last few years, in hospital, clinical and private work, I have seen a large number of cases of pellagra, but no single instance of the disease in Hebrews. Casual inquiry among my colleagues has shown that my experience is not unique. Is there a racial immunity to pellagra in Jews? In seeking a wider field of inquiry, I shall be obliged to readers of THE JOURNAL for information bearing on this point. If the observation is correct, it would aid somewhat in a negative fashion in the solution of this difficult etiologic problem. The Jews are not eaters of corn-bread, do not use other articles of diet that are under suspicion, and are urban as a class.

BERNARD WOLFF, Atlanta, Ga.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE ALLEGED AURA SURROUNDING THE BODY

To the Editor:—The newspapers have been reporting some remarkable seances that have occurred in Chicago at which an aura was demonstrated, apparently surrounding the body. The dispatches stated that the aura indicates the presence and character of disease. What are the facts regarding this demonstration? If you publish an answer to this, please do not print my name.

X. Y. Z., Milwaukee.

ANSWER.—Several queries similar to above have been received. The "demonstrations" in question have been conducted by the manager of a publishing company which has published a book by a London physician reviewed in last weeks' issue. "Demonstrations" have also been conducted by a Chicago physician at one of the local hospitals. On invitation, a representative of THE JOURNAL attended two of the former demonstrations. After a rambling talk by the demonstrator, those present were taken into a room equipped with double curtains and with strips around the doors and windows to exclude all light. Each was provided with a double glass slide filled with a dark blue fluid, and was told to hold this screen before the eyes for some five or ten minutes in order, as the demonstrator explained, to "saturate the eyes with rays." The curtains were then drawn down and the room darkened as completely as possible. The subject for demonstration, a woman model, stripped to the waist, was then placed in front of a black curtain. Each observer was given a "screen" containing a weaker solution of the same fluid through which he was told to gaze at the model. The demonstrator asserted that a band or strip of light, caused by the emanation of rays from the surface of the body, would be seen surrounding the entire body close to the skin and extending outward for a distance of 8 to 10 inches, also that on approximating the fingers of the demonstrator to the fingers of the model and drawing them away slowly, light rays would be seen passing from one hand to the other and forming a band of light similar to the "rays" from a static electric machine. Our representative three times endeavored to see the "aura" at each of the demonstrations he attended but was unable at any time to detect anything except the normal outline of the body. The phenomena said to be observed by some of those present can be accounted for in two ways: First, self-deception, in that the majority of observers are inclined to see or to try to see what they are told to see; second, optical illusions due to the overstraining of the eyes in gazing at the bright sunlight outside through the colored screen, to the sudden darkening of the room, to the dilatation of the pupils in the effort to accommodate and to the projection of the white outlines of the body on the black background. The so-called "outer envelope," the black line said by the demonstrator to surround the body at a distance of ⅛ of an inch from the skin, is simply a double outline of the body surface, seen when the eyes are focused on some intermediate point, as the median line of the arm. This appearance is well known in physics and can easily be demonstrated on inanimate objects as books, etc.

Even if the claims of the demonstrators as to the existence of the "aura" could be substantiated, its importance or value as a diagnostic aid would still remain to be proved. For instance, even if the "aura" exists, it will still be necessary to prove first, that it is actually composed of rays emanating from the body; second, that this emanation is in any way affected by disease; third, that variations caused by disease are positive and constant, and fourth, that each disease modifies the "aura" in a peculiar and distinctive way. None of these points has been in any way proved, either by the book or by the demonstrator but, on the contrary, assertions have been made without a particle of evidence. The entire matter impresses one as being another instance of self-delusion, plus commercialism. No doubt before many months we shall have a new sect of healers who will base their system of diagnosis, pathology and treatment on the "aura." Whether they will be called "aurites" or "auropaths" remains to be seen. The claims of the writer and the promoters of the book are not worthy of serious consideration, as they will not stand the most superficial investigation.

BOOK DISINFECTION BY GASOLINE AND PHENOL

To the Editor:—Some time ago I saw in the newspapers an item on a new way to disinfect books with gasoline and carbolic acid. Can you give me the details? The item interested me because formaldehyd has proved ineffective for closed books, and we need some method involving less expense than the destruction of the books.

H. S., Cincinnati.

ANSWER.—Our correspondent refers to an article by Dr. W. L. Beebe in the *Journal of the American Public Health Association*, January, 1911. An abstract of this article appeared in THE JOURNAL, Feb. 18, 1911, page 538. Dr. Beebe has experimented with a solution of 2 per cent. of phenol (carbolic acid) in gasoline, and has found it effective and harmless. It seems to penetrate every portion of the book, carrying the germicide with it, and does not mar the book in any way if it is allowed to dry before being handled.

DOUBLE ECTOPIC GESTATION

To the Editor:—Please give references to the literature on double ectopic gestation.

H. C., El Paso, Texas.

ANSWER.—The following articles on this subject may be referred to:

Chandler, S.: Double Extra-Uterine Pregnancy, *New York Med. Jour.*, Aug. 15, 1903.

Greenberg, H.: Bilateral Tubal Pregnancy, THE JOURNAL, Aug. 17, 1907.

Barker, M. R.: Double Extra-Uterine Pregnancy, *Surg., Gynec. and Obst.*, 1907, v, 132.

Bielyayeff, D.: Pregnancy Simultaneously in Both Fallopian Tubes, *Med. Obozr. Mosk.*, 1908, lxx, 820.

McCalla, L. P.: Pregnancy, Twin Tubal and Bilateral Tubal, *Surg., Gynec. and Obst.*, March, 1909.

Norris, C. C.: Primary Ovarian Pregnancy, Report of Case Combined with Extra-Uterine Pregnancy, *Surg., Gynec. and Obst.*, August, 1909.

Labhardt, A.: Simultaneous Tubal Pregnancy on Each Side, *Beitr. z. Geburtsh. u. Gynäk.*, xiv, 1.

Duret, H.: Grossesse tubaire ou hématosalpinx doubles, *Jour. d. sc. méd. de Lille*, 1909, ii, 73. *Rev. mens d. gynéc., d'obst. et de pédiat.*, 1909, iv, 257.

Wilson, T. G.: Ruptured Bilateral Tubal Pregnancy, *Australasian Med. Gaz.*, April, 1910.

Burty, H.: Grossesse extrautérine double rompue à droite, non rompue à gauche, opération, guérison, *Paris chir.*, 1910, ii, 45.

Findley, P.: Bilateral Tubal Pregnancy; Coincident Development, *Surg. Gynec. and Obst.*, 1910, xi, 28; *Tr. Am. Gynec. Soc.*, 1910, xxxv, 26.

Süssmann, F.: Doppelseitige Tubar Schwangerschaft, *München. med. Wchnschr.*, 1910, lvii, 1341-1343.

A CERTAIN METHOD OF OBTAINING THE KNEE-JERK

To the Editor:—Dr. Curran Pope describes in THE JOURNAL, June 10, 1911, p. 1705, a method to obtain the patellar reflex. This method is a very good one and can certainly be recommended. I saw it first time in the neurologic clinic of the Johns Hopkins Hospital, where Prof. H. M. Thomas has been using and teaching it for many years. All the essential points of it are pictured in "Allgemeine Diagnostik der Nervenkrankheiten," by Dr. Paul T. Moebius, first edition, 1886, page 125, Figure 37.

Dr. Thomas has somewhat elaborated the method by placing the finger over the tendon and determining that it is relaxed. This secures an easy method of estimating both the force of the blow of the hammer and the response. The method is more widely known than Dr. Pope seems to think; at least practically all graduates of the Johns Hopkins Medical School have been taught to use it.

C. DENCKER, Chicago.

The Public Service

Medical Department, U. S. Army

Changes during the week ended July 22, 1911:

Holland, Joseph N., lieut., left San Antonio with the Fifteenth Infantry en route to Fort Douglas, Utah.

Jenkins, F. E., M.R.C., left San Antonio, Texas, with troops, en route to Fort Leavenworth, Kan.

Williamson, L. P., lieut., returned to Fort D. A. Russell, Wyo., from duty at San Antonio, Texas.

Hall, W. E., M.R.C., left San Antonio, Texas, with troops en route to station, Whipple Barracks, Ariz.

Hewitt, John M., M.R.C., left U. S. Military Prison, Fort Leavenworth, Kan., on twenty days' leave.

Rich, Edwin M., captain, is hereby relieved from his duties as attending surgeon, Headquarters, Department of California, will perform the duties of attending surgeon, Headquarters, Western Division, San Francisco.

Ballard, James C., M.R.C., will, in addition to his duties at Fort Miley, Cal., perform the duties of attending surgeon, Headquarters, Department of California, San Francisco.

Bartlett, Cosam J., major, assigned to duty as inspector and instructor, the Hospital Corps, Organized Militia of Massachusetts, Essex and Middlesex counties, from July 25 to 30, 1911.

Ford, Joseph H., major, ordered to Sea Girt, N. J., as inspector and instructor, Organized Militia, from July 22-29 and from July 29 to Aug. 5, 1911, Sanitary Troops.

Hopwood, L. L., captain, ordered to Culpepper, Va., as inspector and instructor, Organized Militia, Sanitary Troops, July 23 to 29, and July 30 to Aug. 6 and Aug. 6 to 12, 1911.

Little, William L., captain, ordered to Quonset, R. I., July 23-30, as inspector and instructor, Organized Militia, Hospital Corps.

Long, Charles J., dental surgeon, will proceed to Philippine Islands on transport Aug. 5, 1911.

Wales, Philip G., major, retired from active service.

Michie, Henry C., first lieut., ordered to Fort Missoula, Mont.

Priest, Howard, M.R.C., granted leave of absence for three months, effective Sept. 2, 1911.

de Quevedo, Louis G., M.R.C., granted leave of absence for two months.

Grubbs, Robert B., major, one month extension of leave of absence granted.

Christie, Arthur C., captain, leave of absence for three months and twenty-seven days granted, effective September 6.

Lewis, William F., major, on his arrival at San Francisco, will proceed to the Presidio of Monterey for duty.

Palmer, Fred W., captain, on expiration of leave, from Seattle to Fort George Wright, Washington.

Whaley, Arthur M., captain, on arrival at Seattle, Wash., will proceed to Fort Monroe, Va., for duty.

Fetterolf, Daniel W., M.R.C., is ordered to active duty and to report to Surgeon-General for temporary duty; then proceed to Medical Supply Depot, New York City, for duty.

Stephenson, William, lieut. col., ordered to Mt. Gretna, as inspector and instructor, Pennsylvania Militia, Sanitary Troops, from July 22-29, 1911.

Hess, Louis T., major, ordered to Indiana, Indiana County, as inspector and instructor, Pennsylvania Militia, Sanitary Troops, July 22-29, 1911.

Williams, A. W., captain, ordered to Sellsgrove, Pa., as inspector and instructor, Pennsylvania Militia, Sanitary Troops, July 22 to 29, 1911.

Clarke, Howard, and Robinson, James L., lieuts., left San Antonio, Texas, with Eighteenth Infantry, en route to Fort Mackenzie, Wyo.

Ford, Harry G., lieut., left Outpost Camp, Cal., en route to station, Presidio of Monterey, Cal.

Mitchell, Leopold, M.R.C., left Washington Barracks, D. C., for temporary duty at Fort Foote, Md.

Harris, H. S. T., lieut. col., assumed duties as assistant to Chief Surgeon, Western Division, San Francisco; relieved from duty as Medical Supply Officer, San Francisco, on July 11, 1911.

Gentry, Ernest R., lieut., left San Antonio, en route to Langtry, Texas, for temporary duty.

Whithan, J. D., lieut., reports for duty with Company L, Third Engineers, San Antonio, Texas.

Divins, George G., lieut., reported for duty with Field Hospital No. 1 and Ambulance Company No. 1, San Antonio, Texas.

Ferenbaugh, Thomas L., lieut., left Fort Sam Houston, en route to Langtry, Texas, for temporary duty.

Flynn, Thomas J., lieut., left Camp Eagle Pass, Texas, with troops, en route to Fort Omaha, Neb., thence to Fort Snelling, Minn., for duty.

Creighton, Samuel S., lieut., reported for duty with Field Hospital No. 3 and Ambulance Company No. 3, San Antonio, Texas.

French, S. W., lieut., left San Antonio, Texas, for duty at Fort Hancock, N. J.

Wolven, F. Homer, dental surgeon, reports for temporary duty at Fort Egbert, Alaska.

Robinson, James L., lieut., left San Antonio, Texas, with Eighteenth Infantry, en route to Fort Mackenzie, Wyo., thence to Fort Wayne, Mich., for duty.

Hartsock, F. M., major, left San Antonio, Texas, en route to station, Fort Wayne, Mich.

Hallett, H. J., lieut., left Fort Sam Houston, Texas, en route to Fort Hamilton, N. Y.

Mills, Ray W., lieut., reported at Fort Sam Houston, Texas.

Reddy, John J., lieut., left San Antonio, Texas, with Eleventh Infantry, en route to Fort D. A. Russell, Wyo., thence to Fort Jay, N. Y., for duty.

Jones, Percy L., captain, left San Antonio, Texas, with Eleventh Infantry, en route to Fort D. A. Russell, Wyo.

Dutcher, G. H., major, left San Antonio, Texas, en route to station, Plattsburg Barracks, N. Y.

Register, E. C., lieut., left San Antonio, Texas, en route to Fort McPherson, Ga., for duty.

Eckels, Lauren S., lieut., left San Antonio, Texas, en route to Fort McKinley, Maine, for duty.

Gilchrist, H. L., major, left San Antonio, Texas, with Eleventh Infantry, to station at Fort Omaha, Neb.

Phillips, Hiram A., lieut., returned to Fort Andrews, Mass., from duty on transport *Sumner*.

Schreiner, E. R., major, left Calexico, Cal., with troops for duty at Sequoia National Park, Cal.

McKnight, J. R., lieut., left San Antonio, Texas, for duty at Walter Reed General Hospital, D. C.

Vose, William E., major, is assigned inspector and instructor Organized Militia at Vicksburg, Miss., July 18-27, then return to his station.

Coffen, Albion McD., M.R.C., will attend the sick at Jackson Barracks, La., during absence of Major Vose, Medical Corps.

Stephenson, William, lieut. col., will inspect the following posts: Fort Wood, Fort Hamilton, Fort Wadsworth, Fort Jay, Fort Totten, N. Y., and Fort Hancock, N. J.; also office of Attending Surgeon, New York City, then he will return to station.

The following-named officers are assigned to duty as inspectors and instructors, Organized Militia, and will proceed to places named below, then return to stations:

Reno, William W., major, ordered to Augusta, Maine, August 7-16, detachment of the Hospital Corps.

Hopwood, Lucius L., captain, ordered to Glenn Allen, Va., Aug. 12-19, Sanitary Troops.

Reynolds, Charles A., major, ordered to Frederick, Md., August 18-27 Ambulance Company, District of Columbia.

The following-named officers are assigned to duty as inspectors and instructors of Organized Militia at Pine Camp, N. Y., Aug. 5-13, 1911:

McCaw, William D., major, of First Field Hospital.

Reynolds, Charles E., major, First Ambulance Company.

Wilson, James S., major, ordered to Fort Ethan Allen, Vt., September 17-26, Hospital Corps.

Hartnett, Eugene H., major, ordered to New Castle, Del., July 22-29, Hospital Corps.

Arthur, William H., col., left Walter Reed General Hospital, D. C., on eight days' leave.

Straub, Paul F., major, reports being relieved from duty with Maneuver Division, and departure on thirty days' leave.

Clarke, Howard, lieut., reported for duty at Fort Crook, Neb.

Maddux, H. C., M.R.C., left San Antonio, Texas, en route to Fort Moultrie, S. C., for duty.

Medical Corps, U. S. Navy

Changes for the week ended July 29, 1911.

Stainaker, P. R., passed assistant surgeon, ordered to Naval Hospital, Las Animas, Colo.

Taylor, J. L., passed assistant surgeon, detached from the *Chester* and ordered to the Naval Hospital, Norfolk, Va., for duty.

Sanborn, C. F., acting assistant surgeon, appointed acting assistant surgeon from July 20, 1911.

Lanning, R. H., assistant surgeon, ordered to duty at the Naval Hospital, Navy Yard, Mare Island, Cal.

Nash, F. S., medical inspector, detached from duty at the Naval Recruiting Station, Philadelphia, Pa., and ordered to duty on the *Rhode Island*.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended July 26, 1911.

Cofer, L. E., assistant surgeon-general, directed to proceed to New York Quarantine Station, also to Boston, Mass., via Albany, N. Y., on special temporary duty.

Long, J. D., assistant surgeon-general, directed to proceed to Boston, Mass., on special temporary duty, and on completion of the duty to return to Jamestown, R. I.

Stoner, G. W., surgeon, granted six days' leave of absence from July 12, 1911.

White, J. H., surgeon, granted four days' leave of absence from July 16, 1911, under paragraph 189, Service Regulations.

Young, G. B., surgeon, granted four months' leave of absence from July 5, 1911, with pay, and for the further period from Nov. 5, 1911, to June 30, 1912, without pay.

Oakley, J. H., surgeon, granted two days' leave of absence from July 19, 1911, under paragraph 191, Service Regulations.

Holt, John M., passed assistant surgeon, granted ten days' leave of absence from Aug. 5, 1911.

McLaughlin, A. J., passed assistant surgeon, directed to proceed to Boston, Mass., on special temporary duty.

Stimson, A. M., passed assistant surgeon, directed to proceed to New York Quarantine Station on special temporary duty.

Creel, R. H., passed assistant surgeon, leave of absence for seventeen days from July 15, 1911, amended to read "four days from July 15, 1911"; directed to proceed to New York Quarantine on special temporary duty.

Hotchkiss, S. C., assistant surgeon, directed to pursue certain investigations in connection with duty on "mine rescue car."

Knight, C. P., assistant surgeon, granted fifteen days' leave of absence from Aug. 1, 1911.

Clegg, Moses T., assistant director, Leprosy Investigation Station, granted twenty-eight days' leave of absence from July 12, 1911, with pay, and two days' leave of absence, without pay.

Bailey, C. A., acting assistant surgeon, granted two days' leave of absence, June 24, and July 24, 1911.

Gillis, G. H., acting assistant surgeon, granted seven days' leave of absence from July 17, 1911, under paragraph 210, Service Regulations, granted eight days' leave of absence from July 24, 1911.

Houghton, M. W., acting assistant surgeon, granted ten days' leave of absence from July 15, 1911.

Safford, M. V., acting assistant surgeon, granted twelve days' leave of absence from July 24, 1911.

Weldon, W. A., acting assistant surgeon, granted thirty days' leave of absence from Aug. 1, 1911.

Maguire, E. S., pharmacist, granted twenty-seven days' leave of absence from Aug. 5, 1911.

Curiton, C. G., pharmacist, granted twenty-nine days' leave of absence from Aug. 1, 1911.

Bierman, C. H., granted four days' extension of annual leave from July 5, 1911, on account of sickness.

Stump, F. A., pharmacist, granted thirty days' leave of absence from Sept. 1, 1911.

Medical Economics

WISCONSIN COUNTY SECRETARIES MEET

The second annual meeting of the Association of County Secretaries and State Officers of the State Medical Society of Wisconsin was held at Waukesha, June 6, 1911.

The president, Dr. T. J. Redelings of Marinette, in his address said in part: The slogan, "get together," has resulted in beautiful progress. A study of the reports of the bodies operating under the American Medical Association is most gratifying. All serious-minded men realize that medical education is not in a very satisfactory condition. There are altogether in this country 129 medical schools, half of which are doing reasonably acceptable work; the other half, owing to lack of financial support, equipment and qualified instructors, might better be discontinued. There is no justification to-day for a medical school as a financial investment.

The county secretary will do well to court the friendship and favor of young men in the community about to begin the study of medicine and give them correct information concerning the better schools and hold up before them high ideals in medical attainment.

The state university becomes the logical sponsor. The Wisconsin University Medical Department was tardy in its development, but when it came it was organized along right lines. The faculty is able, the laboratories adequately equipped and financial support is sufficient. I hope the day is not far distant when the university will send its medical men to the various counties of the state to demonstrate to medical societies new and better methods.

The professional spirit is growing. The county societies are growing in numerical strength and in the quality of the scientific work.

WHAT TO STRIVE FOR

A paper with this title, by Dr. Edward Evans of La Crosse, was read by the secretary. Dr. Evans said in part: The county society is the unit and center of the state and national organization, but the county secretary is the heart, the pulsing motor of the county society. In greater or less degree every one of his refractory flock is vaccinated with one or more of the seven deadly sins. How to inoculate with the opposite virtues is a task worthy of a Pasteur or an Ehrlich. We need organization *in* our profession to-day more even than organization *of* the profession. While medical men are notoriously hard units to unite, yet they need, as no other body needs, the benefit of cooperation. In our county societies we must preserve in their proper relations the social, the scientific and the business sides of the profession. Because of special qualifications, medical men are bound to promote and assist all movements for the general welfare. The county societies should often hold open meetings. Most attention should be paid to the scientific side of medicine, to new theories rather than old practices.

THE SCIENTIFIC SPIRIT IN THE COUNTY SOCIETY

A paper on this subject was presented by Dr. E. B. Brown of Beloit, who said in part: To have the scientific spirit means that a man recognizes the value of and is in sympathy with all study and experimentation that tends to make diagnosis more exact and treatment more specific and with all measures that tend to eliminate preventable diseases. The county society should be a source and inspiration of scientific spirit for the profession of each county.

The first requisite is getting the men together. To do this any procedure is justifiable which will accomplish the result. Having built up a society strong as to attendance, the matter of promoting the scientific spirit is not so hard. There are certain measures of especial importance: First, the program. The program committee should be appointed early. They will have time to find what men are interested in certain lines, what ones have special cases or original work to report. The program should be well balanced, with the scientific side not too prominent, yet the scientific atmosphere should prevail. Of especial value are the visits of some one from the larger medical centers who can bring the very latest in his line and present it in an authoritative and scientific manner. There should be encouragement of the members in attendance on the various larger medical gatherings and clinics.

THE BUSINESS SIDE OF PRACTICE

Dr. W. F. Zeirath, Sheboygan, speaking on this theme, said: The business side of medical practice should be methodically handled. Careful accounts should be kept and bills promptly rendered. A close scrutiny of "charity" accounts should be kept. In many of these cases the necessity for charity on the part of the physician will be found unnecessary. These same people, if they get into a lawsuit, will find the money to pay the lawyer. The same is true of other obligations. The physician should be careful in his investments, confining them to properties in his own community, instead of, as is largely the case, going into various mining, oil and land schemes hundreds of miles away.

PREVENTIVE MEDICINE

Dr. A. Egdahl, Menomonie, said: Preventive medicine is the medicine of the future. Members of the county society should be given opportunity to learn what is being done along these lines. There are several diseases that troubled us to a considerable extent years ago which are now of rare occurrence. Meetings should be held devoted to the consideration of preventive medicine, and papers along this line presented at every meeting, the expense to be borne by some organization interested in this work or by the medical society itself. Printed rules in relation to preventable disease should be furnished to patients. The various secretaries should call attention of the members to the valuable services rendered by the state hygienic laboratory at Madison regarding tests and microscopic examinations in tuberculosis, diphtheria, typhoid fever, rabies and other preventable diseases. The public is beginning to demand that physicians should know something about preventive medicine. Most of the work in preventive medicine can be done in infectious and contagious diseases. The prevention of venereal diseases is an important part of preventive medicine; also medical inspection in the schools in heading off a great number of preventable diseases in the start. We should try to create a great interest in the subject of preventive medicine in our medical societies.

Dr. H. W. Abraham, Appleton, said in the discussion: In one of the smaller towns of 17,000 or 18,000 people with two daily papers, when they are short of news, the reporters go around and interview the physicians of the city on just such subjects as have been mentioned here, usually on a disease prevalent at that time, such as for instance, typhoid fever, diphtheria, colds and occasionally there has been an article on the prevention of tuberculosis, method of ventilation, the value of fresh air and matters of that kind. These articles have been put in the reading columns of the paper. They are not written by the physician but by the reporter himself. They have had considerable influence on the public opinion of that town.

MEMBERSHIP AND ATTENDANCE

Dr. H. A. Jegi, Galesville, presented this paper. He said: One of the most distressing features of the profession is the undercurrent of disloyalty among its members, the desire to secure some advantage over others by methods that come under the term "questionable." Get the irregular man into the society, give him work to do, elect him to office and you may be surprised at the good work he will do. If he persists in the old ways, turn him over to the care of some other member. There are very few that cannot be reached. Though you may not be able to make a good ethical member of him, I believe he will harm the society and profession less as a member, and you may do him lots of good. The ideal man and physician will join of his own accord. The indifferent man is the most difficult of all to handle.

HOW CAN WE GET THE ATTENDANCE OF COUNTRY MEMBERS?

Dr. M. V. De Wire, Sharon, presented a paper on this subject, saying: Select the place of meeting with the idea of the convenience of reaching it by the greatest number. Arrange the time and number of the meetings to suit the majority of the members. Evening meetings might be practicable in the

season of good roads. Invite the physicians to bring their wives and let the ladies visit while the men are discussing business and work. The printing and arrangement of the program can be made to wield an influence in securing attendance. In arranging the program it is best to take up live subjects for the principal part. Subjects of particular interest to members of certain localities will often bring out several members who are not in the habit of attending regularly. Encourage the members to report their difficult and unusual cases.

The scientific side should not be neglected. It is well from time to time to invite someone from the outside who is making investigations along special lines to address the meeting. The social features can be depended on to bring out a good attendance at at least one meeting of the year. Subjects of semi-public interest, such as anterior poliomyelitis, tuberculosis, the public drinking-cup evil, or the spread of disease by the common house-fly, or an illustrated lecture, will help to attract. The largest factor in the successful meeting is the personal element between the secretary and the individual member.

ONE WAY TO GET AND HOLD MEMBERS

Dr. R. H. Buckland, Green Lake, said: Two years ago our county society had twenty members and now has thirty. The territory in these three counties makes it a broadly scattered field with poor railroad connections. The president and the secretary both live at Green Lake and are both on the program committee, the third member being in a town nearby, making it convenient to confer frequently in regard to plans for the meeting. In an effort to secure members I had a little spare time last May, a year ago, and started out and traveled through the different towns and called at the office of the different doctors, some of whom were members and some not, and took the matter up with them and told them the advantages of being members of the county society, and the result of that one trip was the securing of seven new members. A personal canvass through the county once a year or once in two years will do much to hold the membership. The thing emphasized in speaking to the men who lived in the outskirts of the county was the medical defense feature. Our society has meetings every two months and the programs are short, one or two papers at the outside, followed by a full discussion. Once a year we hold a picnic at Green Lake and all the physicians in the territory and their wives and families are invited.

OFFICERS ELECTED

The following officers were elected: Dr. W. F. Zeirath, Sheboygan, president; Dr. M. V. De Wire, Sharon, vice-president; Dr. Rock Sleyster, Waupun, secretary.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

NEBRASKA: Lincoln, August 9. Sec., Dr. E. Arthur Carr, 141 S. 12th St.

IOWA: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.

MISSOURI: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.

NEW YORK: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

Nebraska February and May Reports

Dr. E. Arthur Carr, secretary of the Nebraska State Board of Health, reports the written and practical examinations held at Lincoln, Feb. 7-9 and May 23-25, 1911. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. At the examination held February 7-9, the total number of candidates examined was 6, of whom 4 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Ensworth Medical College	(1909)	75
Creighton Medical College	(1910)	85
Lincoln Medical College	(1910)	89.7
Western University, London, Ontario	(1899)	81.7
FAILED		
Ensworth Medical College	(1897)	67.5
Central Medical College, St. Joseph	(1899)	65

At the examination held May 23-25, the total number of candidates examined was 55, of whom 47 passed and 8 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Ensworth Medical College	(1911)	75.2, 76.2, 79.1, 81.1, 84.2
University Medical College, Kansas City	(1911)	76.6, 79.9
University of Nebraska	(1911)	81.2, 83.1, 83.2, 83.2, 84.4, 84.4, 84.7, 86.5, 92.
Creighton Medical College	(1910)	81.7; (1911) 75, 77.5, 77.6, 77.9, 78.4, 79, 79.5, 80.6, 80.8, 80.9, 81.2, 82.1, 82.6, 83.2, 83.4, 83.6, 84.9, 85.6, 86.4, 86.5, 86.6, 89.2, 89.5.
Lincoln Medical College	(1911)	75.2, 76.6, 77.4, 78.2, 80.1, 87.9
Medical College of Ohio	(1894)	83
FAILED		
Ensworth Medical College	(1911)	70.2, 71.9, 72.9
Creighton Medical College	(1911)	69.7, 72
Lincoln Medical College	(1911)	69.2, 71.7
Meharry Medical College	(1911)	69.7

Arizona April Report

Dr. Ancil Martin, secretary of the Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, April 3-4, 1911. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 8, of whom 6 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1910)	89.8
Keokuk Med. Coll., Coll. of Phys and Surg.	(1900)	75.3
University of Michigan, Dept. of Med. and Surg.	(1903)	82.2
Washington University, St. Louis	(1903)	78.6
Beaumont Hospital Medical College	(1899)	77.1
Laval University, Quebec	(1908)	79.9
FAILED		
Hahnemann Med. Coll. and Hospital, Chicago	(1892)	66.2
Western Pennsylvania Medical College	(1890)	40.2

Nebraska Reciprocity Report

Dr. E. Arthur Carr, secretary of the Nebraska State Board of Health, reports that at the meetings held since Jan. 1, 1911, twenty-two candidates have been licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Reciprocity with
University of Colorado	(1910)	Colorado
Hahnemann Medical College and Hospital, Chicago	(1901) (1902) (1907) (1909)	Illinois
Northwestern University Medical School	(1905)	Illinois
College of Physicians and Surgeons, Chicago	(1891) Iowa; (1905 (1906)	Illinois
Rush Medical College	(1898) Iowa; (1908)	Wisconsin
Drake University	(1910)	Iowa
University of Kansas	(1910)	Kansas
College of Physicians and Surgeons, Baltimore	(1907)	Maryland
Univ. of Mich., Dept. of Med. and Surgery	(1901)	Arkansas
University of Minnesota, College of Medicine	(1899)	Minnesota
Barnes Medical College	(1893) Missouri; (1909)	Illinois
Medical College of Ohio	(1901)	Kentucky
Eclectic Medical College, Cincinnati	(1909)	Ohio
Memphis Hospital Medical College	(1899)	Indiana
University of the South	(1905)	Tennessee

Arkansas Homeopathic May Report

Dr. P. C. Williams, secretary of the Homeopathic State Medical Board of Arkansas, reports the written examination held at Little Rock, May 23-24, 1911. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago Homeopathic Medical College	(1879)	75
Kansas City Hahnemann Med. Coll.	(1911)	78, 79, 79, 84, 85
FAILED		
Kansas City Hahnemann Medical College	(1902)	68

Book Notices

THE WASSERMANN SERO-DIAGNOSIS OF SYPHILIS IN ITS APPLICATION TO PSYCHIATRY. By Dr. Felix Plaut, Scientific Assistant in the Psychiatric Clinic of the University of Munich. Authorized Translation by Smith Ely Jelliffe, M.D., Ph.D., Professor of Psychiatry, Fordham University, New York, and Louis Casamajor, A.M., M.D., Assistant New York Neurological Institute. Nervous and Mental Disease Monograph Series No. 5. Paper. Pp. 188. New York: The Journal of Nervous and Mental Disease Publishing Co., 1911.

Felix Plaut's oft-quoted monograph has at last been put into English. Though the translation is too literal, one feels grateful that it has been done at all. This important contribution and the conclusions derived therefrom, carried out in Wassermann's laboratory by a conscientious worker, should have great weight with us in arriving at a correct estimate of the value of this biologic test. Plaut's conclusions are practically those of other workers in the same field.

On account of their importance, we abstract a few of his summaries. In respect to the value of the Wassermann test in the diagnosis of syphilis, Plaut says that the positive reaction is an expression of the general luetic infection, and in consequence individuals reacting positively to this test are not free from syphilis. The reverse is by no means true, as persons in the latent tertiary stage may react negatively, and yet not be free from syphilis.

Concerning general paresis, Plaut has found that the serum in this disease, with but few unimportant exceptions, gives a positive reaction, and that, therefore, a negative serum reaction speaks against paresis. The latter disease appears to occupy a unique position among the varied clinical forms of syphilis and parasyphilis, in that the negative reaction is of greater value than the positive one, because the last also occurs in syphilis and is valueless for differential diagnosis between it and general paresis.

In the case of a positive serum reaction, Plaut usually resorts to lumbar puncture, in order to ascertain the biologic and cytologic qualities of the cerebrospinal fluid. Rarely, he states, has he seen a negative reaction of the spinal fluid in paresis. He even goes further and maintains that in the absence of tabes symptoms the positive reaction of the spinal fluid, even if found in an apparently healthy individual, means the oncoming of general paresis later.

Plaut's discussion of feeble-mindedness in relation to a hereditary syphilitic etiology is extremely interesting, and brings out many new points of view. His assertions are based on a number of cases which he quotes either in abstract or in tabulated form. The monograph concludes with a table of the important literature bearing on this subject. While criticizing the faulty English translation of an excellent German monograph, we nevertheless heartily commend it to those unable to read the original.

WHAT TO EAT AND WHY. By G. Carroll Smith, M.D., Boston, Mass. Cloth. Price, $2.50 net. Pp. 310. Philadelphia: W. B. Saunders Co., 1911.

This book is readable, though its literary quality might be improved. Its contents, however, will be found useful by those who wish to apply dietetics to the treatment of disease. Very little is said about the chemistry of foods. The author endeavors to explain the principles underlying the use of foods and the essential reasons why a change of diet in certain diseases is desirable. Only the most important diseases, however, are discussed.

Chittenden's experiments, which have led him to fix on an unusually small quantity of proteid as the best standard for man, have interested students of dietetics chiefly during the last few years. Our author explains these experiments but does not adopt the standard unqualifiedly either for the healthy or the diseased. For the latter, he says, "it is an every-day experience that the protein must occasionally be reduced even below Chittenden's and often raised above Voit's standard."

The judgment of the author is good; therefore his conclusions are trustworthy. He takes pains to explain why a person's diet must be varied under differing conditions of disease. The work is a commendable one.

THE EXPERIMENTAL CHEMOTHERAPY OF SPIRILLOSES (SYPHILIS, RELAPSING FEVER, SPIRILLOSIS OF FOWLS, FRAMBESIA). By Paul Ehrlich and S. Hata. With Contributions by H. J. Nichols, New York; J. Iversen, St. Petersburg; Bitter, Cairo; and Dreyer, Cairo. Translated by A. Newbold, and Revised by Robert W. Felkin, M.D., F.R.S.E., Late Lecturer on Tropical Diseases, Edinburgh Medical School. Cloth. Price, $4. Pp. 181, with illustrations. New York: Rebman Co.

This small book is an authoritative statement of the work leading to the introduction of salvarsan. The largest part of it is by Hata on the experimental basis of the chemotherapy of spirilla. There is a brief report of the action of salvarsan on the *Spirochæta pertenuis* in the animal body by Nichols, one on patients with relapsing fever treated with the drug in the Cairo Infectious Hospital by Bitter and Dreyer, and the work concludes with a fairly comprehensive survey of the general subject by Ehrlich. It goes without saying that it is a highly interesting narrative. Hata's statement in particular of the preliminary chemical work and of the principles followed in it holds one as an account of one of the most original investigations of modern therapeutic chemistry. Ehrlich in his "concluding remarks" traverses in part the same ground and shows the steps by which he gradually came to 606 and decided on its therapeutic value. He makes a strong plea for the originality of the work and the essential differences of the derivative salvarsan from the original atoxyl. The tone of Ehrlich's contribution is distinctly on the defensive.

Of course this volume is entitled to the highest consideration as an authoritative statement on the most active subject in medicine and is worthy of careful reading.

THE TREATMENT OF SYPHILIS WITH SALVARSAN. By Dr. Wilhelm Wechselmann, of Berlin, Medical Director of the Skin and Venereal Disease Section, Rudolph Virchow Hospital, Berlin. With an Introduction by Dr. Paul Ehrlich, of Frankfort-on-Main, Director of the Royal Institute for Experimental Therapeutics, Frankfort. Only Authorized Translation by Abr. L. Wolbarst, M.D., of New York, Consulting Genito-Urinary Surgeon, Central Islip State Hospital. Cloth. Price, $5. Pp. 175, with illustrations. New York: Rebman Co., (1911).

This is a companion volume to Ehrlich and Hata's "Chemotherapy." In it Wechselmann considers salvarsan very fully from the clinical standpoint. His personal experience in over 1,400 cases, the clinical experience of various other experimenters, the technic of administration, repetition of the dose, effects on the Wassermann reaction, by-effects and accidents—most of the aspects of the subject, in short, are elaborately set forth. The volume is a valuable statement of the earlier experience with this new and startling remedy, although, of course, the statement is already old, so fast does the subject travel these days. As an ending of the volume there are appropriately given a group of sixteen fine colored illustrations, showing the effects of salvarsan on various syphilides. These illustrations are perfect, and show well the effects of salvarsan on syphilis, although no better or more rapid results are shown than are usual from mercury in similar lesions.

HEALTH HINTS AND HEALTH TALKS. By E. R. Pritchard, Secretary of the Chicago Department of Health. Cloth. Price, 50 cents net. Pp. 153. Chicago: The Reilly & Britton Co.

This little book contains the suggestions made to the public as a part of the educational and publicity work of the Chicago Department of Health. The subjects covered are various and are all intimately related to the comfort and health of the people. The hints are in the form of short, terse, epigrammatic paragraphs, each on a separate subject and intended to clinch in the mind of the lay reader the value of good health for himself and family. The book is admirably adapted to the instruction of the public, while the short paragraphs lend themselves readily to use in health bulletins and other mediums.

VICIOUS CIRCLES IN DISEASE. By Jamieson B. Hurry, M.A., M.D. (Cantab.). Cloth. Price, $2 net. Pp. 186, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1911.

The subject of this monograph is interesting and important. Every practitioner appreciates the significance of vicious circles but few know how common they are and the revelations of this book will surprise many. Each of the two hundred odd circles is described in a separate paragraph, which makes the work somewhat less easily read than if it were written more consecutively. It contains many illustrations which graphically depict vicious circles.

Medicolegal

Constitutionality of Medical Practice Acts—Chiropractic a Practice of Medicine

(State vs. Johnson (Kan.), 114 Pac. 390)

The Supreme Court of Kansas holds that chiropractic treatment is a practice of medicine under the statute of that state. The first count of the information charged that the defendant "Did then and there unlawfully and wilfully practice medicine and surgery . . . by then and there attempting to treat for a fee one William Mershon, Sr., who was then and there afflicted with bodily infirmities, and who was then and there sick, the nature and extent of said sickness and bodily infirmities being to informant unknown, by then and there pretending to adjust the vertebræ of the said William Mershon, Sr." The sixth count charged him with advertising in a newspaper: "Chiropractic. P. W. Johnson, D.C., the Chiropractor of Hutchinson, Kan., will be in Stafford at Hotel Brinham, Tuesday and Friday, 9 a. m. to 1 p. m. If you are afflicted in any way, or have tried everything else without results, try chiropractic spinal adjustment." These were the only counts considered by the Supreme Court.

The trial court sustained a motion to quash the information: "For the reason that it is agreed by both sides that said P. W. Johnson is a chiropractic and practicing his profession as such and is a graduate of some school which teaches chiropractic and stands ready to take an examination in chiropractic before the state board of medical registration, but that the statutes of the state make no provision for granting license to one practicing chiropractic, and has applied to take such examinations before said board, but it has refused to examine him or grant him a license to practice in Kansas." But the Supreme Court holds that the first and sixth counts were erroneously quashed.

The Supreme Court says that it has no doubt whatever that the legislature may prescribe reasonable restrictions and qualifications touching the healing art in any of its departments without impairing any constitutional rights. While power does not exist to give one particular school of medicine a monopoly or to prohibit the citizen from using or employing the ordinary home remedies and neighborly administrations, still, when one holds himself out to the public as a healer of disease by the use of means or methods vouched for by him and for which he receives pay, the legislature may, for the protection of the citizen from quackery or imposture, require such person to possess and show certain qualifications for doing properly what he does and what he receives pay for doing.

Webster's New International Dictionary defines "chiropractic" as: "A system of healing that treats disease by manipulation of the spinal column." And the court was advised by counsel for the defendant that "the chiropractor claims that all the diseases which are in any way affected by his adjustments are caused by the partial displacement of the vertebræ, thus causing the nerves which pass through the openings in the vertebræ to press against the sides of the openings and prevent the life fluid from flowing freely through the nerve to the part of the human system to which the particular nerve reaches. Diseases not caused by the pressing of the nerves against the sides of these openings the chiropractor does not in any way treat. The chiropractor claims that the only treatment so called which he uses is not a treatment, but merely an adjustment of the vertebræ which restores the vertebræ and the nerves to their normal position, and thus removes the cause of the disease. He does not practice surgery or medicine and does not use any other manipulations whatever than the adjustment of the vertebræ." But the language of the 1908 amendment of the Kansas statute, which is an act to "regulate the practice of medicine, surgery and osteopathy," is very broad, and even under the foregoing description of chiropractic it may well be said that one whose vertebræ are partially displaced, causing impairment of nerve function, is one afflicted with bodily infirmity, and that one who restores the functional activity of the nerve on which the maladjusted vertebræ had formerly pressed is treating, or attempting to treat, such afflicted person.

It may be argued that, giving the entire language a close, critical and discriminating meaning and construction, this method of so-called "treatment" is in no sense the product of medicine or surgery, and would, indeed, come more nearly under the term "osteopathy." But the manifest object and intent of the legislature was to protect the public from ignorance and imposition in the healing art. Osteopathy is carved out as a separate department, and registration and license are required, while its practitioners are prohibited from giving medicine and performing surgical operations; that is, from practicing medicine and surgery as distinguished from osteopathy. But "medicine and surgery," which the defendant was charged with attempting to practice, by common use and adjudged meaning, cover a wide portion of the domain of healing, and may and should be held to cover the case of one who, not claiming to be a physician or surgeon, really practices osteopathy under another guise without possessing the qualifications required of the osteopath.

The legislature has by the statute referred to treated osteopathy as a separate department and covered all the other branches of the healing art by the term "medicine and surgery." As new schools of practice come into favor, their followers must possess the requirements for the practice of medicine or surgery, or prevail on the legislature to make separate provision for them as it has done for the osteopath.

Violation of Medical Practice Act by Masseur

(Newman vs. State (Tex. Cr. App.), 134 S. W. R. 688)

The Court of Criminal Appeals of Texas affirms here a conviction of the appellant (defendant) Newman of the offense of unlawfully engaging in the practice of medicine without first having registered and filed for record the certificate required, his punishment having been assessed at a fine of $100 and five days' imprisonment in the county jail.

It was contended that one who practiced as a "masseur" is not guilty of any offense under the Texas statute, and that the facts were insufficient to sustain the judgment; but whether or not the facts were insufficient was submitted to the jury trying the cause under a proper charge, and the jury found against the contention. The appellant's defense was fairly submitted to the jury in these instructions, given at his request: (1) "If you find from the evidence that the defendant did not charge for his services as a masseur, or for treatment by any method or system, and receive pay for such treatment between the 27th day of May, 1909, and the 21st day of June, 1909, you will acquit him, and say by your verdict, 'We, the jury, find the defendant not guilty.'" (2) "You are instructed that a masseur, in his particular sphere of labor, is not required to secure a certificate authorizing him to practice medicine, and if you believe from the evidence that the defendant, as a masseur, practiced within the particular sphere of masseurs, you will acquit him." One witness testified that she was treated by the defendant for "floating kidney," prior to May 27, fifty-two days for $50, going to his office for treatment. Another witness testified that she went to the defendant's office and was treated by him between May 27 and June 21. He did not charge for his services during that time, but she gave him $10. He charged her for services prior to May 27. The defendant ran this advertisement in a local paper: "Come and take masseur treatment, and learn to live without drugs." Under the construction of the medical practice act by this court in Newman vs. State, 124 S. W. 956 (THE JOURNAL, June 4, 1910, p. 1900), these acts constituted a violation of the law.

The statute provides that: "Any person shall be regarded as practicing medicine who shall treat or offer to treat any disease, or disorder, mental or physical, or any physical deformity, or injury by any system or method, or to effect cures thereof, and charge therefor, directly or indirectly, money or other compensation." If the jury hearing the testimony arrive at the conclusion that the defendant was treating and offering to treat disease by some method, and charged therefor, directly or indirectly, this court cannot say that there was no testimony to support their finding

Coroner's Physician Not Justified in Dissecting Body and Keeping a Part Merely Because an "Interesting Case"

(*Hassard vs. Lehane* (*N. Y.*), *128 N. Y. S. 161*)

The First Appellate Division of the Supreme Court of New York reverses a judgment of non-suit and grants a new trial in this case, which was brought by a mother to recover damages for an alleged wrongful and unlawful dissection of the remains of her son and detention of parts of the remains. The deceased was a coach driver of the age of 28 years, who lived with his mother, and was thrown from his coach by an obstruction in the street, and died within a few hours after being taken to a hospital. The defendant was a coroner's physician, who did not claim to have been directed by a coroner to hold an autopsy, but merely asserted that it was "his privilege to make the dissection," explaining, when inquired of by the coroner, that the deceased had a greatly enlarged spleen, and it was an interesting case.

The plaintiff had a legal right, on the facts stipulated, the court says, to the possession of the corpse of her son in the condition it was at the instant of death for the purpose of preserving and burying the remains, and, without her consent, or statutory authority therefor, no one had a right to deprive her of such possession, or to dissect or otherwise mutilate the body of her son, and the law gave her a cause of action to recover damages, which should be measured by the injury to her feelings, caused by the invasion or violation of this right. The statutory provisions which the defendant contended, on acount of his being coroner's physician, authorized and justified his acts conferred no authority on him to dissect the remains in the absence of a direction by the coroner, which was not shown to have been given; and, even if the autopsy had been authorized by the coroner, that did not, on the facts presented, justify the removal and detention of any of the organs of the deceased.

Doubtless, if the defendant made the autopsy by the direction of the coroner, that would justify the dissection of the body, but it would not, in the absence of further directions from the coroner or district attorney, or other evidence, warrant the removal or detention of any part of the body.

Society Proceedings

COMING MEETINGS

Colorado State Medical Society, Steamboat Springs, Aug. 15-17.

AMERICAN CLIMATOLOGICAL SOCIETY

Twenty-Eighth Annual Meeting, held at Montreal, Canada, June 13-14, 1911

The President, DR. JOHN W. BRANNAN, New York, in the Chair

Officers

The officers elected for the ensuing year were named in THE JOURNAL, July 1, page 34.

The Relation of Forest Growth to Neighboring Water-Courses

DR. JOHN W. BRANNAN, New York: It was formerly supposed that extensive cutting of forests had increased the frequency and height of floods and had intensified the periods of drought. We are now informed that there is no statistical evidence to prove that this is true. I have made some study of the documents and arguments offered by the two parties to the controversy and find that it is a situation in which, indeed, "experience is fallacious and judgment difficult." Engineers and meteorologists assert that the figures presented by foresters as to the bad effects of deforestation are misleading, and in support of their statement offer other observations made on the same rivers at the same stations to prove that floods are neither more frequent nor more severe than in former times. As there has been no change in the flow of rivers, deforestation could have no such injurious effects as have been attributed to it. Further, it was claimed that all deforested land which had been converted into agricultural land had been put to its best use, and that no land which is suitable for the production of food should be withheld for the growing of timber. There now seems to be a new light on the subject. The forest floor surely protects the springs and controls the surface flow of water better than ground that has been denuded, especially if the land is on a hill or mountain side. If the ground is fairly level and suited to agricultural purposes, and is under constant cultivation, the growing crops form not a bad substitute for the forest. One should not expect to reforest level or slightly rolling land which is now under cultivation. In the mountain ranges, on the other hand, and on steep hillsides the forests should be preserved, not only to insure a regular supply of water for great river systems, but also to prevent the danger of excessive erosion.

The Climatic and Hygienic Influences of Forest Growth

DR. JAMES M. ANDERS, Philadelphia: Forests influence climatic factors in various ways. They expose resistance to the free passage of wind currents and moderate the extremes of temperature. Prussian observers have shown that for ten years the greatest heat of the day in July is, on the average, nearly 6 degrees lower than outside. The air of the forest contains a somewhat higher standard of average humidity than that outside. The air is cooled by transpiration or the evaporation of water from the leaves, and the air below the covering formed by the forest leaves is kept cool in consequence of this absorption of the heat. The opinion that forests are natural equalizers of the temperature rests on exact scientific premises. The vegetable canopy prevents to a certain degree evaporation from the soil, forests forming a more or less perfect screen between the sky and the earth. Evaporation from the soil of forests is rather more than one-third as great as from the open soil. The effect of the forest in preventing evaporation becomes greater with increasing altitude. It is warrantable to draw the *a priori* conclusion that when ever a fair proportion of woodland exists, properly distributed, a considerable influence must be exerted thereby on the hydrometeorology of the region. During the cold season forest vegetation, after a sponge-like fashion, holds considerable moisture in the soil; hence the earth in the vicinity of a forest is more humid than elsewhere in the winter. It is not too much to claim that forests are natural equalizers of both temperature and atmospheric humidity. Ozone is generated by odorous foliage and all of the flowering species. The exhalations from the conifera are particularly energtic in the promotion of ozone. Ozone through its power to combine chemically with pernicious organic impurities probably constitutes Nature's principal means of purifying our atmosphere. The sanitary influences of forest growth are principally dependent on the two physiologic functions—transpiration and ozonification, but these do not extend to any extent beyond the borders of the woodland. The advantages of forests, particularly pine forests, for the consumptive, should be conceded. There are no facts to oppose the practice of sending patients with laryngeal tuberculosis to the pine forests. Here they can obtain the superior benefits arising from a highly ozonized and terebinthinated atmosphere. In view of the facts brought out, there can no longer be any question as to the sanitary importance to the municipality of public squares, provided they are filled with appropriate growing vegetations.

DISCUSSION

PROFESSOR STUPART, Toronto: Some years ago I undertook an investigation of the rainfall occurring along the Great Lakes of North America and in other places. From the figures obtained it seems that the rainfall to-day does not equal that of earlier days, 1840. With regard to the temperature in Toronto since 1840, it is evident that it has increased but slightly; the spring months are not quite as cold as in the earlier year. As to the winter temperatures, it has been shown that the ideas of the old inhabitants were erroneous. The daily range of the temperature to-day is probably the same as it was seventy years ago. The figures given for Montreal go back to 1873. In the "sixties" the rainfall was 38 inches, and during the next ten years 39.2; and from then on it averaged 41.4, 41.7, etc. As far as the meteorologic records are concerned, it seems that in Canada the operations of man have had but little effect on the climate of the country.

I cannot account for the greater liability to summer frosts in the earlier days in Canada. Floods in Canada are no more disastrous than they were during earlier years.

DR. J. H. ELLIOTT, Toronto: The theory of Dr. Anders that forests modify the temperature seems to be borne out by the facts presented by Professor Stupart. In Ontario the heat during the summer months is slightly greater and the cold less than a few years ago; the very slight difference cannot be accounted for by the influence of any vegetation on the temperature.

DR. CHARLES L. MINOR, Asheville, N. C.: If the mountains of North Carolina were stripped of their forests they would be practically useless for other purposes. It is not a question of how deforestation affects the rainfall, but a question as to whether deforestation is harmful to the flow of water into the rivers and the water-supply in low-lying countries.

DR. WILLIAM H. BERTOLD, Denver: The question of deforestation has many interesting features. Certain reserves in the West permit cattle grazing. The cattle thrive better than on the plains. When the timber is removed there is a denudation of undergrowth as well.

DR. ALEXANDER D. BLACKADDER, Montreal: The value of any health resort should be estimated both by the amount of sunlight and of shade. One cannot say that the presence of many trees is not conducive to health; however, where timber predominates and where sunlight seldom enters, noxious influences are at work. The aim should be to cluster well-kept trees; this permits a large amount of sunlight and at the same time gives the stimulating effect of the ozone.

DR. A. J. RICHER, Ste. Agatha des Monts, Quebec: Consumptives are living in lumber camps in extreme comfort even with the temperature 40 F. below zero. They have none of the advantages of real household living. They live in a primitive way and the degree of comfort derived by them from their primitive life appears marvelous. There seems to be some vitalizing influence. It seems that the digestive functions are influenced by this way of living.

DR. JAMES M. TAYLOR, Philadelphia: We have not as yet enough knowledge in respect to the conditions that existed in the ancient countries where the forests have ceased to exist. We should take into consideration the conditions that exist in Greece, Mexico and the valley of the Euphrates. This subject is closely bound up with anthropology.

DR. ROBERT C. PATERSON, Ste. Agatha des Monts, Quebec: We should decide what changes take place in the soil when the trees are removed; when this occur the hills are washed bare of all soil and only rock is left, which does not have the power to absorb moisture. This must have some influence.

DR. JAMES M. ANDERS, Philadelphia: Stations should be located in various places beyond the borders of the forests. There is no doubt but that forests possess certain influences in reference to temperature and relative humidity, but I do not know how far beyond the borders of the forest this influence extends. As to whether observations in reference to ozone may be conclusive or not, I cannot say that the position taken is tenable. I have followed the usual recognized tests. The results were uniform; certain species of plants seem to possess the power of producing ozone, even the non-odorous plants. I think the balance of testimony is in favor of the flowering and odorous plants producing ozone.

Two Causes of Death in Pulmonary Tuberculosis

DR. LAWRASON BROWN, Saranac Lake: Death in chronic tuberculosis is brought about most often through pathologic changes in the lungs, less often by those occurring in the heart and brain. This study of the causes of death in chronic pulmonary tuberculosis is based on data obtained from the records of death of 1,204 patients who died at or after leaving the Adirondack Sanitarium, and from 378 deaths which occurred in Saranac Lake Village. The data concerning 245 cases were not reliable, thus limiting the study to 959 deaths. While the usual cause of death was asthenia, the complications which terminated life were very numerous, and can be grouped under four heads: (1) general miliary tuberculosis; (2) pulmonary; (3) extra-pulmonary complications, and (4) sudden death. It is easy to arrange such a classification, but difficult to fit cases into it. In all, 332 patients, or 58 per cent., 163 males and 169 females, presented asthenia as the most marked symptom before death. Twenty-eight patients died from asthenia following hemoptysis. Immediate death from hemoptysis occurred in eighty-two patients. Symptoms of enteritis occurred in 18; symptoms of nephritis were present in fourteen patients. Asphyxia was the most marked cause of death in twenty-one cases. In 385 cases pulmonary tuberculosis was stated as the only cause of death. Profuse sudden hemoptysis in the earlier stages of the disease was an unusual cause of death; when death occurred from this cause it was brought about more often by suffocation. Fatal hemoptyses were in practically every instance due to rupture of an aneurysm of one of the terminal branches of the pulmonary artery. Death from pneumothorax occurred in three cases. Gangrene as a cause of death was exceedingly rare. Death due to extra-pulmonary causes occurred in 111 cases. Syncope was given as the cause of death in thirty cases. Sudden death in pulmonary tuberculosis is unusual. Of forty-four deaths that had occurred among 3,300 patients during the residence at the Adirondack Cottage Sanatorium, thirty died with signs of pulmonary disease, eight of extra-pulmonary tuberculous complications and six of non-tuberculous disease. The figures that relate to the 378 patients who died at Saranac Lake from pulmonary tuberculosis show that 256 died from asthenia, four from asphyxia, fourteen from general miliary tuberculosis, forty-eight from hemoptysis, eight from pneumothorax, twenty-two from meningitis, ten from laryngitis.

DISCUSSION

DR. H. R. M. LANDIS, Philadelphia: Some years ago, in studying seventy-five cases of death in pulmonary tuberculosis, I found that a majority died of general asphyxia, or a gradual wasting away, or because of a ceasing function. Three of the patients died from intestinal hemorrhage. It is amazing that so few patients died of complications of the intestinal tract. As far as my observations go asphyxia never occurs in tuberculosis. Out of 600 cases, not one patient died suddenly from heart failure; this is a rare form of death in this disease.

DR. GORDON WILSON, Baltimore: I should like to call attention to the greater frequency of hemoptysis among females than among males; among 1,000 such patients there were 20 per cent. more females than males.

DR. CHARLES L. MINOR, Asheville: Dr. Brown has depended on reports from various doctors and this vitiates the value of the statistics. The term asphyxia I do not quite understand, unless it follows hemorrhage. I have never seen a patient asphyxiated because of calcareous glands, but I did see one with relatively small hemorrhages who died of asphyxia, and in this case the entire lung was involved with miliary tubercles.

DR. EGBERT LE FEVRE, New York: The term asphyxia is not sufficient for classification as to the direct cause of death.

DR. H. J. ELLIOTT, Toronto: Pneumothorax is very frequently overlooked by the general practitioner. During the past year I have seen three cases in consultation and in none was the correct diagnosis made by the physician. In these cases asphyxia would probably be given as the cause of death.

DR. JOHN M. SWAN, Watkins: I had one patient who died of asphyxia in pulmonary tuberculosis. The fatal termination began as an extensive plastic pleurisy.

The Class Method in the Treatment of Pulmonary Tuberculosis

DR. JOSEPH H. PRATT, Boston: A tuberculosis class was started in the Massachusetts General Hospital in 1905. The homes were visited by nurses and once a week I saw all the patients under my care. Facilities for outdoor life are afforded. I have found it easy to control patients and to keep them in bed, if necessary. Absolute rest in bed is very important; I have found that when patients are given liberty to exercise, recovery is often retarded. During six years we have had 117 selected patients, sixty-four of whom have recovered. There were but three relapses. Two deaths oc-

curred among the discharged patients, both in women who had become pregnant. The disease returned and ran a rapid course. Twenty-five patients admitted in the first stage of the disease recovered. Among those in the advanced stage of the disease, ten cases were arrested and eighteen patients died. It is hard to maintain supervision over these patients. I believe that the home treatment of these patients has advantages over the sanatorium treatment; if the patients get well at home they are more apt to remain well. The patients take a cold bath in the morning and drink from 1 to 2 quarts of milk daily.

DISCUSSION

DR. H. R. M. LANDIS, Philadelphia: Dr. Pratt's work has interested me very much. A great deal depends on the woman in charge of the work; it is a mistake to place a woman in charge who has not been trained for this kind of work. Large classes cannot be handled well.

DR. CHARLES L. MINOR, Asheville: The most important feature of the class method is the broadening of the relation between the doctor and his patient. This is really the keynote of the success. The doctor should try to come into personal contact with the soul of his patient. It is not the body of the patient alone that is being treated, but the mind as well, and it is difficult to find a man who has the time to place his personality and energy into it.

The Economic Value of the Sanatorium Treatment of Pulmonary Tuberculosis

DR. DAVID RUSSELL LYMAN, Wallingford: The Gaylord Farm Sanatorium was opened September, 1904, and on May 11, 1911, they had 676 discharged patients who had been away from the institution for six months or longer. Thirty-four were school children and had no earning capacity. This left 633 cases on which my study is based. The results of treatment are in direct ratio with the stage of the disease at which the diagnosis is made. The incipient cases show an average total earning of $1,020.60, the moderately advanced of $842.22, while the far advanced earned an average of $192.10. The incipient cases showed a working capacity of 70 per cent. of their total time since discharge; the moderately advanced 59 per cent., and the far advanced only 23 per cent. The average weekly wages varied but little for the three classes. In another table dealing with 262 cases discharged as "arrested," 253 "improved," and 118 "progressive," the arrested show an average total earnings of $1,039.48; the improved $719.53; the progressive only $72.55. The percentage of "weeks of work" to "weeks of life" is 67 per cent. for the arrested, 47 per cent. for the improved, and 14 per cent. for the progressive. The total expenditure was $236,744.51, whereas the amount already earned by discharged patients was $464,406.00, a return of about 200 per cent. within six years from the commencement of the work.

The Relation of Tuberculosis to Chorea, Hyperthyroidism and Pharyngeal Hyperplasia

DR. CHARLES MINER, Wilkes-Barre: At the State Tuberculosis Dispensary at Wilkes-Barre we have examined many children of tuberculous parents, and among them found conditions present which seem in some way related to the tuberculous infection. We found a large number with chorea, or with a history of having had choreic symptoms; again, among the older members of the families, we found a number with the signs and symptoms of hyperthyroidism; finally, we found a very large number with pharyngeal hyperplasia. The question naturally arises, what relation, if any, does the tuberculous infection bear to these conditions? The invasion of the tubercle bacillus is often a slow process, and the significance of tuberculosis in childhood is not limited to the disease itself, but, by lowering the tone and resistance of the child, it leads to the development of abnormal conditions and other infections. We cannot prove that chorea, hyperthyroidism and pharyngeal hyperplasia found in tuberculous children and young adults are caused by the tuberculous infection, but the knowledge of their frequent association may lead, through further investigation, to the discovery of some definite relation of tuberculosis to these conditions.

Studies of the Leukocytes in Pulmonary Tuberculosis

DR. JAMES A. MILLER and MARGARET A. REED, New York: The study of the leukocytes gives reliable information in the prognosis and clinical course of pulmonary tuberculosis. In the diagnosis of incipient cases, it is of no assistance; but in the differential diagnosis of acute pulmonary lesions due to the tubercle bacilli or to some other infection, it is sometimes helpful. Arneth's differential neutrophil count is important in tuberculosis. In pneumonia, while the shift of the blood-picture occurs regularly, it has no constant relationship to the course of the disease.

In general, the following changes in the leukocytes occurred in cases of pulmonary tuberculosis which were progressively doing badly, or which were in an exacerbation of the disease: (a) a leukocytosis; (b) an increased percentage of neutrophils; (c) a diminished percentage of small lymphocytes; (d) a diminished percentage of eosinophils; (e) a marked shifting to the left of Arneth's blood-picture; conversely, changes in the opposite direction were favorable. In pneumonia our observations have made no material contribution to the knowledge of the behavior of the leukocytes.

Atypical Pneumonia

DR. JAY PERKINS, Providence, R. I.: Under this heading I include those cases of pneumonia the specific organism of which is not known. These pneumonias are seen in the aged, in alcoholics, as post-operative pneumonias, associated with typhoid, heart disease, nephritis, in the tuberculous, or in any condition in which the natural resistance of the body has been lessened, although it may occur in strong individuals as well as in the weakened ones. In atypical pneumonia, as compared with pneumococcus pneumonia, the fever lasts much longer, the termination is by lysis, or abscess formation, or chronic pneumonia, or other secondary pathologic conditions of the lungs, and there are complications not met with in pure pneumococcus pneumonia. In its onset a chill is not unusual, there is more likely to be a prodromal stage, the temperature is not so regular, usually not so high, herpes labialis is absent, the spleen is frequently enlarged, and the disease is more likely to be of epidemic form. No regular course of atypical pneumonia can be given because, as the name "atypical" indicates, there is no regular course. In time, however, I believe that improved methods of diagnosis may remove many of these cases from the category of atypical pneumonia.

Physical Exercise and Blood-Pressure

DR. EDWARD O. OTIS, Boston: My attention was first called to this subject while making a physical examination of members of a large men's gymnasium. The men were young or middle-aged and the majority of them were engaged in indoor sedentary occupations. It occurred to me that perhaps, by means of the systolic blood-pressure, taken at three periods, namely, just before, immediately after and then a little later, after a short rest or after the usual bath, I could thereby obtain some definite idea of the effect of the exercise in each individual case and thus have some practical guide as to the amount and severity of the work best suited to each person. I accordingly took the maximum blood-pressure at the three periods mentioned of fifty-nine men, six boys and thirty-two young women. In addition I took the blood-pressure of the first two periods, just before and immediately after exercise, of twenty-nine men making altogether rather over 350 separate measurements. After prolonged and severe exertion there is a diminution of blood-pressure from the normal at the conclusion of the effort. After a short period of mild or moderately severe exercise, as in class work, the blood-pressure taken immediately at the conclusion of the exercise shows, in the majority of the cases, a rise, followed quickly by a fall to or near the normal or to subnormal. In my 126 cases of moderate general exercise, ninety-seven, or 77 per cent., show a rise of blood-pressure immediately after the exercise. In nine, or 8.1 per cent., there is no difference between the first and second measurement; and in twenty cases, or 16 per cent., there is a fall in the second measurement. Physical exercise in the majority of cases, of whatever nature it may be, excessive, long and continued, or more gentle and moderate,

causes a rise in the systolic blood-pressure, the maximum occurring sometime during the effort. As fatigue sets in and advances, the pressure falls to normal or subnormal. If immediately after exercise the blood-pressure is subnormal and remains so for some time, as in the case of the Marathon runners, and foot-ball players, then for that individual, or for his condition at the time of taking the exercise, I should consider it too strenuous or too prolonged.

AMERICAN SURGICAL ASSOCIATION

Annual Meeting, held at Denver, June 19-21, 1911

(Continued from page 416)

The President, DR. RICHARD H. HARTE, in the Chair

The officers elected were named in THE JOURNAL, July 22, p. 302.

Suppuration in One-Half of a Horseshoe Kidney

DR. JAMES E. THOMPSON, Galveston, Texas: The case occurred in a female, aged 15, in whom symptoms of pyonephrosis were definite. Operation revealed the left side of a horseshoe kidney dilated and pyonephrotic. The isthmus was well marked. The right side was normal. Good recovery followed the removal of the affected half.

DISCUSSION

DR. WILLIAM J. MAYO, Rochester, Minn.: In a number of cases of horseshoe kidney observed by us, the symptoms were caused by anomalous blood-vessels. In the last year we have met with three cases of horseshoe kidney in which one-half was giving rise to trouble, but in only one case was the trouble sufficient to necessitate operation. The diagnosis, in other words, does not necessarily mean that the case is an operable one. I have in mind one case somewhat similar to that reported by Dr. Thompson. The patient, a girl of 16, had severe symptoms; had undergone various operations; she had few urinary symptoms, although there was a certain amount of pus in the urine. We found the ureter drawn tight and plainly visible, but the posterior ureter leading to the other half of the kidney was buried so completely that it was difficult to find the division between the two parts. This fact made the operation much more difficult that it would otherwise have been.

DR. GEORGE E. BREWER, New York City: A patient came into my service in a state of more or less chronic sepsis and with a discharging fistula, resulting from a pervious abscess in the lumbar region. He gave evidences of an infected kidney. The ureteral catheter was attempted and the cystoscope, but the presence of a very grave cystitis and a contracted bladder prevented any satisfactory employment of these measures. We operated and found a chronically infected kidney. The upper part of the kidney was distinctly destroyed, the lower part infected, but as we passed down toward the transverse portion it looked healthy. It took a good deal of time to dissect away the perirenal exudate to see that we had another ureter. Fortunately, the man made a very prompt recovery.

DR. KENNETH A. J. MACKENZIE, Portland, Ore.: A young woman complained of pelvic discomfort. I attempted an examination and found what I thought to be a tumor, very dense and unyielding. Operation was performed, no ureters were found, there was no vagina, and this tumor could be felt below the sacro-iliac synchondrosis in the pelvis. Above I found an ovary floating in the abdomen, and pulling it down, found it led to a Fallopian tube and a segment of the uterus. The tumor proved to be a tremendous ectopic horseshoe kidney. Huge vessels connected with it, and nothing could be done; there were some adhesions and I could not see where the vessels came from.

DR. M. L. HARRIS, Chicago: I wish to emphasize the necessity of conservatism in operating on horseshoe kidneys by calling attention to a case in my practice. Some six years ago I had a patient, a young woman, 30 years of age, who was operated on for a movable kidney; this proved to be a mistaken diagnosis, a horseshoe kidney being found. There were two ureters coming from the pelvis, and the pelvis was on the concave side of the kidney, and therefore dragged upward. The ureters were distinctly compressed, as they passed over the anterior surface of the kidney, and to this I attributed the existing dilatation of the pelvis. I attempted to free the ureters as they came from the kidney, and in order to do away with the sharp kinking or compression of the ureter I took the perirenal fat and tucked it under the ureters to give them a large curve, and while doing this succeeded in tearing one of the renal veins; this I closed by suture. I then closed the wound. The patient made a very good recovery and the attacks of pain ceased. About a year later she returned with distinct enlargement in the left side of the abdomen. Pus in the urine and tubercle bacilli were easily found. In view of the horseshoe kidney, the question of what to do was a serious problem. I cut down on the left side, found a distinct pyonephrosis of tuberculous origin, and removed the left half of the horseshoe kidney. The patient made a good recovery and is now in perfect health. If anythingk radical had been done at the first operation on the right side of the horseshoe kidney there would have been no hope for the patient when the tuberculosis developed in the other side.

Treatment of Fistula-in-Ano Without Mutilation of the Sphincters

DR. KENNETH A. J. MACKENZIE, Portland, Ore.: The method of treatment employed by me is the systematic extirpation in properly selected complex cases of the entire fistulous zone under the eye. For this purpose a trap-door flap is made on the side involved, beginning with a short crescentic incision through the skin and connective tissue just beyond the border of the external sphincter; division of the fistula flush at the point of escape from the rectal wall; the flap reflected and formed so as to include the fistula and all its branches; careful closure of the rectal gap within and without by suture; extirpation with knife and scissors under the eye from the flap of the entire fistulous tract, beginning at its main end, with resection, if necessary, of parts hopelessly riddled with sinuses; proper closure of flap. The fistula is now free and excluded from the bowel.

DISCUSSION

DR. THOMAS W. HUNTINGTON, San Francisco: I would like to warn against using the probe without first carefully dilating the sphincter. The finger is inserted into the rectum and the probe passed without previous dilatation of the sphincter; the probe approaches the finger-tip, but is separated from it by a very thin, almost tissue-paper-like covering of mucous membrane. Right here is where very serious blunders are often made, by the pushing of the end of the probe into the rectum by a new channel instead of discovering the original point of departure. Far better results will be obtained in cases in which the precaution is taken of first dilating the sphincter, as I have found in a large number of cases.

DR. CHARLES H. MAYO, Rochester, Minn.: The injection of collargol into these fistulous sinuses is of great advantage in locating the inner tract into the bowel. In deep fistulous tracts running past the internal sphincter, undoubtedly many of them connect with low diverticuli; very recently I have seen two such cases, and I believe them to be much more frequent than is thought.

Arteriovenous Anastomosis for Gangrene of the Leg

DRS. ALBERT E. HALSTEAD and ROGER T. VAUGHAN, Chicago: There is but one indication for the application of arteriovenous anastomosis in surgery; that is in traumatic destruction of a principal artery, where end-to-end union of the vessel is impossible. In such a case arteriovenous anastomosis might be attempted, and through it we might maintain a sufficient blood-supply to preserve the integrity until an adequate collateral circulation is established.

DISCUSSION

DR. HOWARD LILIENTHAL, New York City: There are certain cases of diabetic gangrene in which the arteries are not diseased where arteriovenous anastomosis will be found prac-

ticable. Where both arteries and veins are diseased it naturally does no good to anastomose one diseased vessel with another.

DR. FRED B. LUND, Boston: I have had some experience with arteriovenous anastomosis and have never found it of value. I agree with Dr. Halstead that it has a very limited field of usefulness.

DR. JOHN B. MURPHY, Chicago: I would call attention to the anastomoses that have been formed by bullet wounds and stab wounds again and again; I recall one case of anastomosis of the jugular vein with the carotid artery caused by a bullet. I closed the opening with suture and a perfect result followed.

Pyloroptosis; Gastric Atony as the Original Cause of Neurasthenia, and Its Cure

DRS. ARCHIBALD MACLAREN and LOUIS E. DAUGHERTY, St. Paul, Minn.: A series of skiagrams of the stomach were taken while the patients were standing to determine its size, position and motility. One picture showed the stomach hanging vertically down in the abdomen, hung from the esophageal opening, slightly curved to the right at the bottom, like a big letter J. We found that many stomachs were markedly prolapsed, but that their owners had a perfect digestion. A picture of a neurasthenic woman showed the stomach in the same position, but flaccid, baggy and flattened at the pylorus, showing marked lack of tone. This lack of tone is closely related to acute dilatation of the stomach, which in its worst form is so often fatal. Its subacute form is often unrecognized, and passes on into the chronic type, which we see in these atonic stomachs. Most of the patients had their appendix removed, but still had right-sided pain and tenderness. Many had discovered that the discomfort which came about one hour after eating could be relieved by lying down. This is a valuable point in differential diagnosis. When in the upright position the stomach, after preparing food, must lift it over the duodenal hill 5 inches; muscular power must be normal or the patient will be uncomfortable and commence to lose weight. We have seen the earliest signs of neurasthenia in atony of the stomach in young children. If an operation has to be done for physical or mechanical conditions, the patients should be kept in bed much longer than other patients and started on forced fat feeding. We conclude that the position of the stomach is not important; the pylorus is practically a pelvic organ; the principal function of the stomach is mechanical; the beginning or first symptom of the so-called neurasthenia is due to gastric atony; postural drainage and fat feeding, temporarily at least, cures these patients; operations on the stomach to change its position and help its drainage have still to be proved advisable, because no operation will take away the muscular atony, but will rather aggravate it.

MR. HAROLD J. STILES, Edinburgh, Scotland: I have always been able to obtain quite satisfactory results in these cases by doing a gastro-enterostomy with a good big opening, closing off the duodenum. By allowing the food to escape from the stomach more readily you will so improve the primary digestion and the nutrition of the patient that the neurasthenia will gradually disappear. My experience has been that there is a distinct tendency to improvement in constipation by doing a gastro-enterostomy and closing the duodenum.

Ulcer of the Stomach and Duodenum, with Special Reference to the End-Results

DR. WILLIAM J. MAYO, Rochester, Minn.: Of 1,000 cases in our series, 428 were classified as gastric and 572 as duodenal ulcer. Of 379 cases of gastric and duodenal ulcers operated on previous to June 1, 1906, 227 (59 per cent.) were classified as gastric and 152 (41 per cent.) as duodenal. Of 621 cases of gastric and duodenal ulcers operated on from June 1, 1906, to Jan. 17, 1911, 201 (32.5 per cent.) were gastric, 401 (64.5 per cent.) duodenal, and 19 (3 per cent.) had an ulcer of each viscus. That at least two out of three cases of ulcer will be found to have their origin in the duodenum rather than in the stomach is a conservative estimate. Of the 1,000 cases, 255 were women and 745 (practically three out of four) were men. The operative mortality in this series was 2.4 per cent. Three hundred and seventy-nine of these patients were operated on previous to June 1, 1906, before the operative technic had been well worked out, and the imperfections in methods were responsible for some failures to cure and an increased mortality. In studying the histories of the gastric ulcers we found that practically all situated close to the pylorus and accompanied by obstruction, were relieved by gastrojejunostomy, whether or not the ulcer was excised. However, whenever it was possible to do so, we excised the ulcer because of the liability to cancer degeneration. In a few cases very extensive ulceration of the body of the stomach precluded the employment of any operation on the stomach, and jejunostomy, with complete rest of the organ for some weeks, has been necessary. The results were good. It is very evident that operations for duodenal ulcers present a higher average of cures than operations for gastric ulcers. Gastrojejunostomy, with or without infolding the ulcer, not only affords a great relief to the patient with duodenal ulcer, but a permanent cure in a remarkably high percentage of cases.

(To be continued)

PHILADELPHIA COUNTY MEDICAL SOCIETY

Regular Meeting, held June 14, 1911

The President, DR. C. B. LONGENECKER, in the Chair

The Blank Cartridge and Other Amusement Explosives in the Etiology of Tetanus

DR. SAMUEL WOLFE: That the tetanus germ may be present on the skin, on the site of the wound, and that it may gain entrance at a later stage, are admissions we are justified in making. Whether it is ever carried in the missile itself is more difficult to determine, and while I believe its possibility is not remote, the great probability is that it is derived from elsewhere. While in the manufacture of gunpowder the ingredients may become contaminated, the chances are not greater than of contamination after the powder has left the manufacturers' hands. The wad used in the blank cartridge is not above suspicion of contamination, particularly if clay is used in its composition. Contused and lacerated wounds are favorable to the infection. In these we have a very large number of peripheral nerve endings exposed to irritation and to the tetanus toxin. The strict supervision of vaccine and surgical material makes the introduction of the germ in operations and vaccinations of little more than historical interest. The Fourth-of-July group represents the one class that may confidently be looked for so long as the present methods of celebration prevail. A study of the statistics indicates that the infection gains entrance to the wound at or very soon after the injury.

Treatment of Tetanus

DR. J. NORMAN HENRY: There is great difficulty in estimating the value of any treatment in this disease, because of the changing picture it frequently presents. I have treated four patients with intraspinal injections of magnesium sulphate with recovery in one case. I have noted a very much intensified and alarming action of the salt in successive doses, even when intervals of 36 or 48 hours occur between injections. Phenol (carbolic acid) in my hands has not been very successful though there is much evidence of its efficacy and it should always be used when antitetanic serum cannot be obtained, and may with propriety be used in conjunction with it. Amputation of fingers and toes is advised when the point of infection is there present. Otherwise, excision of the offending wound and cleansing with strong phenol solution is demanded. Prophylactic treatment is recommended but must not stop short at mere cleansing of the wound and antiseptic dressing. At least 1,500 units of antitetanic serum should be injected, if the wound be a suspicious one. The intracranial and intraspinal methods of injection of antitetanic serum do not appear to present particular advantages over the subcutaneous route. Large doses of antitetanic serum should be used as a routine measure as early in the case as possible. The use of the serum does not interdict other measures of treatment such as the administration of bromids and chloral, phenol and magnesium sulphate.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York State Journal of Medicine

July

1 *Blood Transfusion. Direct Method. T. L. Deavor, Syracuse, N. Y.
2 Deductions from Clinical Experience in the Use of a Polyvalent Bacterial Vaccine. J. M. VanCott, Brooklyn, N. Y.
3 Latest Statistics on Cancer in the United States and in New York. W. B. Chase, Brooklyn, N. Y.
4 *Malignant Tumors of the Kidney. H. Adsit, Buffalo, N. Y.
5 Cerebral Compression. E. R. McGuire, Buffalo, N. Y.
6 The Nervous Woman. E. B. Angell, Rochester, N. Y.
7 The Reporting of Gonorrhea as a Method of Preventing Gonorrheal Ophthalmia. L. Howe, Buffalo, N. Y.
8 A Case of Epidural Hemorrhage Complicating Epilepsy with Rupture of Posterior Branch of the Middle Meningeal Artery. Recovery. W. C. Cramp, New York.
9 Arteriosclerosis as a Factor in Mental Diseases. T. J. Currie, Willard, N. Y.
10 Exclusion of Ulcerated Areas in the Pyloric Region. R. S. Fowler, Brooklyn, N. Y.
11 The Wassermann Reaction and the Physician. W. J. Heimann, New York.
12 Anchoring the Caput Coli. R. S. Fowler, Brooklyn, N. Y.
13 Burns. C. Haase, Elmira, N. Y.

1. **Blood Transfusion.**—The direct method, which has been used in experimental work by Deavor, has given him most gratifying results. The donor and donee are placed in position side by side, the radial artery and basilic or other vein, respectively, being selected. The parts are cleansed and anesthetized with a 1 to 2 per cent. solution of cocain. Infants require only saline infiltration. Morphin is rarely necessary. The artery and the vein are then laid bare for 2 or 3 inches, cleared of all connective tissue, and their nearby branches and tributaries carefully ligated. Nerve filaments are to be avoided as far as possible. The vessels are then covered with hot saline sponges. No vaselin is needed. It is a foreign element of doubtful utility. The wrist of the giver is now brought so close to the arm of the receiver that the artery, when divided, will more than reach the vein. Small mouse-toothed forceps are applied to the vessels, two to the vein and one to the artery, in such a manner as respectively to serve as tractors in opening and closing the vein, and as a carrier to steady and transmit the artery. The incision in the vein should be longitudinal, preferably, and just large enough to easily receive the artery and admit of ready closure of the vein about it. The matter of closing the vein about the artery is easily done by a simple twist of the forceps, an embellishment which will occur to the operator at the proper time. The forceps should grip only the outer coat of the vessel. Not much assistance is called for. Up to this point very little time has been consumed, as the work of isolating the vessels is quickly done. One thing is absolutely important: the adventitia must be so thoroughly cleared away as to reduce the artery to a wire-like structure. This does not in any way alter its function. Everything is now ready. The clamps are applied, the artery severed, the vein opened, and while both vessels are bleeding freely, the artery is quickly carried into the vein for a half to three-quarters of an inch, and the vein closed around it. No special forceps are needed, but Deavor has found the short mouse-toothed clamp with lock to work splendidly. When a sufficient amount of blood has been transfused, the vessels are ligated and the wound closed. In every instance the artery will be found pulsating when it is withdrawn from the vein. This, with venous pulsation, are satisfactory proof that blood has entered the circulation of the patient. No vessels are clamped or adjusted to various cannulæ, or applied to intervening tubes or carried about with traction threads. In short, they are not disturbed in function until the moment of making anastomosis.

4. Abstracted in THE JOURNAL, May 20, 1911, p. 1506.

Quarterly Bulletin of Northwestern University Medical School, Chicago

June

14 Old Fractures of the Patella with Retraction. A. B. Eustace, Chicago.
15 Submucous Resection of the Nasal Septum. O. H. Maclay, Chicago.
16 Mixed Hypercytosis. J. F. Hultgen, Chicago.
17 A System of Study in Pathology. H. Jackson, Chicago.
18 Pellagra. W. H. Buhlig, Chicago.

Southern Medical Journal, Nashville

July

19 The American Society of Tropical Medicine. W. S. Thayer, Baltimore.
20 *Certain Septicemias Resembling Yellow Fever. J. W. Amesse, Boulder, Colo.
21 A Probable Case of Sprue. S. K. Simon, New Orleans.
22 Prophylaxis of Malarial Infection. C. F. Craig, Washington, D. C.
23 *Is Pellagra a Disease Primarily of the Alimentary Tract? J. C. Johnson, Atlanta, Ga.
24 Etiology and Treatment of Pellagra. G. J. Winthrop and H. P. Cole, Mobile, Ala.
25 Chinese Medicine. A. S. Taylor, Yangchow, China.
26 Present Status of Uncinariasis in Alabama. W. W. Dinsmore, Montgomery, Ala.
27 Municipal Sanitation, Especially of Seaports. R. H. Von Ezdorf, Mobile, Ala.
28 Tropical Diseases and Health in the United States. J. M. Swan, Watkins, N. Y.
29 *Is the So-Called "Cotton Mill Anemia" of the Gulf-Atlantic States Due to Lint or to Uncinariasis? C. W. Stiles, U. S. P. H. and M.-H. Service.

20. **Septicemia Resembling Yellow Fever.**—Among the affections which Amesse says must be considered and eliminated before the diagnosis of yellow fever is justified, none are more baffling than the group of diseases included in the general term infectious jaundice or icterus gravis. Unquestionably, septicemic and usually hemorrhagic in character, of sudden onset and hidden origin, they resemble so closely the picture of the more severe invasions of yellow fever that one with difficulty maintains an unbiased attitude in their consideration. From this group Weil's disease is omitted, there being no question in Amesse's mind that in these latter cases we have to deal with an intoxication or an acute febrile icterus, rather than a specific infection. Of decidedly differing character, however, are the serious disorders involving the liver and gastro-intestinal tract, running a short, sharp course, and furnishing a death-rate varying from 25 to 60 per cent. Cases of this type have usually been reported from tropical and subtropical localities, the clinical features being practically identical, whether observed in the Eastern or Western hemispheres, and justifying the conclusion that identical etiologic factors are concerned.

23. Abstracted in THE JOURNAL, June 10, 1911, p. 1753.

29. **Cotton-Mill Anemia.**—The truth of this matter, according to Stiles, is that the widespread and severe southern "cotton-mill anemia" has nothing to do with working in the cotton mills, but is directly traceable to other factors, namely, it is uncinariasis, contracted in the majority of cases on the farms; it is due largely to the present insanitary conditions existing in the rural districts, and is brought to the mills by the people who come from the farms. Further, while some of the infection does actually spread in the mill villages, the amount of such village infection is far below the amount of infection obtained on the farm before the people came to the mills; further, also, the sanitary conditions in nearly all the mill settlements (poor though they be) are so vastly superior to the average conditions on the farms from which these people came, that, as a rule, the mill workers as a class (there are exceptions) do, and necessarily must, improve in health the longer they live in the mill villages. Stiles says that in order to understand the conditions in the southern cotton mills, it is necessary to keep constantly in mind the fundamental fact that the labor in these mills is recruited chiefly from the white people living on the soil-polluted farms or working as tenants or hired hands on some of the soil-polluted plantations.

Journal of Missouri State Medical Association, St. Louis

July

30 Tuberculosis. H. E. Pearse, Kansas City.
31 Cancer Investigation. L. Loeb, St. Louis.
32 The Significance of Abdominal Pain and the Maladministration of Opium. F. G. Nifong, Columbia.

California State Journal of Medicine, San Francisco

July

33 The Experimental Basis of Vaccine Therapy. F. P. Gay, Berkeley.
34 *A Clinical View of Vaccine Therapy. H. C. Moffitt, San Francisco.
35 *Surgical Significance of Papillo-Edema. L. W. Mansur, Los Angeles.
36 Diagnosis of Certain Intracranial Lesions. T. J. Orbison, Los Angeles.
37 Indications, Technic and Results in Decompressive Operations on the Brain. W. I. Terry, San Francisco.

38 Surgical Treatment of Sub-Tentorial Cysts and Tumors. A. S. Lobingier, Los Angeles.
39 *Functional Insufficiencies of the Myocardium. H. D. Power, San Francisco.
40 *Treatment of Hemoptysis in Tuberculosis. M. Rothschild, San Francisco.
41 *Hypodermic Use of Hexamethylenamin. F. F. Gundrum, Sacramento.
42 *A Remarkable Case of Chicken-Pox. E. Gray, Eldridge.

34. **Vaccine Therapy.**—In Moffitt's opinion the vaccines offer a very decided addition to our resources in the treatment of infections and their complications. There is a great need of more careful preparation of autogenous vaccines and of proper clinical supervision of dosage and frequency of administration. The indiscriminate use of stock preparations without proper determination of the nature of the infection is strongly condemned. Moffitt points out that one great danger of the multiplication of easily administered remedies supplied by drug houses lies in the neglect of careful diagnosis. Treatment with vaccines must supplement and not supplant well-recognized surgical procedures. In light of our present knowledge no one has a right to delay operation on an acute mastoid of pneumococcus origin with the hope that vaccines may cure the infection. The infected gall-bladder with cholelithiasis must be operated on, the appendix abscess opened, the empyema drained before much help can be expected from vaccines.

35. **Papillo-Edema.**—Mansur regards papillo-edema as one of the most common symptoms in increased intracranial tension, and unless this pressure is relieved before destructive changes occur the patient will become blind; hence the importance of an early recognition of this condition and an early operation for its relief. He emphasizes the significance of dyscromatopsia and the importance of a most careful examination in all the cases which we are inclined to call hysterical.

39. **Functional Insufficiencies of the Myocardium.**—It is pointed out by Power that there are a group of cases in which, without organic change, the heart is unable to functionate normally. While the symptoms may be the same, the underlying pathogenesis may be widely different and is susceptible to analysis into the classes enumerated in this paper. No correct prognosis can be made or rational treatment instituted until these pathogenic factors have been recognized and assigned their proper value. The need for correct treatment is imperative, for if the insufficiency is merely palliated and its causes are removed, perverted function will ultimately lead to organic changes.

40. **Hemoptysis in Tuberculosis.**—Rothschild recommends the treatment of hemoptysis in tuberculosis by the production of an artificial pneumothorax.

41. **Hexamethylenamin.**—The very slight irritation following the hypodermic use of hexamethylenamin has encouraged Gundrum to use it subcutaneously or intramuscularly whenever it is desirable to produce, if not an actively germicidal, an at least inhospitable medium for bacterial growth in any serous cavity, or the bile or urinary passages within a short space of time. He has found this to be particularly valuable if the patient is nauseated, comatose, or about to be operated on when the postanesthetic vomiting too frequently empties the stomach of any drug and often prevents medication by mouth for several hours. He says that the frequent, early and generous exhibition of hexamethylenamin, particularly in cerebrospinal cases is of exceeding value in the prevention of meningeal infection. It is not able to affect to any great extent a case of meningitis once established. It has seemed good practice at times when an early exhibition of hexamethylenamin is indicated, as a prophylactic measure, for example, in instances in which catheterization or other genito-urinary manipulation is necessary, and especially where meningeal, or possibly also joint infection is feared, to use the drug hypodermically until such time as the administration by mouth can be taken up.

42. **A Remarkable Case of Chicken-Pox.**—The case narrated by Gray was remarkable for the number and the character of the complications and for the way in which it ended. In one individual were united epilepsy, chorea, hypertropic astigmatism, fibroid phthisis, pleurisy (with just beginning effusion), chronic endocarditis, with vegetations and a beginning acute stage, varicella and acute granular meningitis, the latter being the cause of death.

Illinois Medical Journal Springfield

July

43 Vaccine Therapy. A. F. Stotts, Galesburg.
44 Uncinariasis. M. I. Kaplan, Port of Cairo.
45 Behavior, Symptoms and Diagnosis of Ovarian Tumors in Non-Pregnant and Pregnant. A. B. Keyes, Chicago.
46 Perforating Ulcer of the Stomach. H. F. Lewis, Chicago.
47 Relation of the Internal Carotids and Optic Commissure to the Hypophysis. O. H. Maclay, Chicago.
48 Limitations of Ophthalmic Practice Imposed by Constitutional Conditions. O. Tydings, Chicago.
49 Cholera Infantum. E. Wahl, Edwardsville.

Ohio State Medical Journal, Columbus

July

50 Behind the Office Doors. J. C. DaCosta, Philadelphia.
51 Intra-Ocular Irrigation After Cataract Extraction. C. Lukens, Toledo.
52 The Smith Operation for Cataract Based on Two Hundred and Seven Cases Operated On in the Clinic of Lieut.-Col. Henry Smith, Amritsar, India. A. Timberman, Columbus.
53 *Removal of Foreign Bodies from the Esophagus and Bronchus. C. F. Bowen, Columbus.
54 Etiology, Diagnosis and Treatment of Retrodeviations of the Uterus. C. W. Moots, Toledo.

53. **Removal of Foreign Bodies from Esophagus and Bronchus.**—In all cases in which a foreign body is either swallowed or inspired, Bowen says a radiograph should be made by a competent person before any attempt is made at its removal. This is especially important in cases of sharp bodies. If the foreign body is dense enough to be revealed on a plate, the diagnosis by this means is easy, but even in those cases in which a vegetable foreign substance is not opaque to the Roentgen-ray, a great deal of information can still be obtained. A grain of corn, for instance, lodged in the bronchus will not cast a shadow on a photographic plate, but its presence can usually be determined by the slight changes in the lung itself, caused by a localized pneumonia, or by a blocking up of certain air cells. The same is true of vegetable foreign bodies in the esophagus, for while the body itself cannot be seen, information especially as to its location can be obtained by giving the patient bismuth, either in the form of a capsule or in gruel, and watching the passage of the preparation down the esophagus with the fluoroscope. If a foreign body is present, the bismuth will be stopped or at least hesitate at the obstruction. The method to be employed in the removal of foreign bodies after their nature, size and position has been determined, must be carefully considered, and Bowen believes that the outcome of the case depends more on the proper selection of the method to be used, than on the actual instruments used or on the operator selected. He has had thirteen cases, in all of which the foreign body was removed without difficulty, and most of the cases required not more than two or three minutes for the actual removal of the foreign body. The one method which Bowen has used more than any other and the one which appeals to him most, is the removal of the foreign bodies with an ordinary pair of forceps, passed into the esophagus or into the bronchus through a tracheotomy wound, while the parts are being examined with a fluoroscopic screen. Bowen has removed tin whistles, coins, open safety-pins, tacks, needles, pins, etc., successfully.

Lancet-Clinic, Cincinnati

July 15

55 Extra-Uterine Pregnancy. W. R. Grieas, Cincinnati.
56 Eclampsia Ten Days After Delivery. H. Buschman, Cincinnati.
57 Medical Advertiser. L. A. Clary, Elbing, Kan.

Journal of the Iowa State Medical Society, Clinton

July

58 *A New Principle Underlying the Interpretation of Clinical Phenomena of the Abdominal Viscera, with Special Reference to Emotional and Painful Indigestion. G. W. Crile, Cleveland.
59 Limitations of the Obstetric Forceps. W. L. Allen, Davenport.

58. **Emotional and Painful Indigestion.**—It is Crile's purpose to endeavor to explain the influence the emotions exert on the digestive tract and the explanation of the origin of painful indigestion. Fear, he believes, can be elicited only in animals that utilize a motor mechanism in defense against danger or escape from it. The emotion of fear is felt in

only those animals whose self-preservation is dependent on an uncertain adequacy of their power of muscular exertion either in defense or in flight. The function of the brain is wholly suspended except that which relates to the self-protective response to the object feared. Neither the brain nor any other organ can respond to any other lesser stimulus during the dominance of fear. Fear is a phylogenetic fight or flight. The present status of civilized man is now operated with the primary equipment of brutish organs. When he fears a business catastrophe it is in terms of his ancestral physical battle in his struggle for existence. He cannot fear intellectually, dispassionately. He fears with all his organs, and the same organs are stimulated and the same organs are inhibited as if instead of its being a battle of credit, of majority votes, it were a physical battle with teeth and claws. Whether the cause of fear is moral, financial, social or stage fright, the heart beats wildly, the respirations are accelerated, perspiration is increased, there is pallor, trembling, indigestion, dry mouth, etc. The phenomena are those of physical exertion in self defense. Any of the strong emotions, as fear, anger and sexual love, says Crile, drives the organs of the body into two classes, first, those organs that are useful in increasing the physical power of the body; all pulse organs are stimulated; second, those organs that can contribute nothing to the physical prowess; these organs are inhibited. This gives us at once a key to all the digestive and metabolic disturbances due to such emotions as fear, anger, sexual love, worry, grief, etc. Crile and Sloan exposed the cerebral hemispheres of dogs by removal of the skull and dura under ether anesthesia and under local anesthesia. Then various portions of the hemispheres were slowly but completely destroyed by rubbing with a piece of gauze. In some instances the hemispheres were destroyed by burning. In no instance was there more than a slight response of the centers governing circulation and respiration, and there was no morphologic change noted in a histologic study of the brain cells of the uninjured hemisphere. Clinically Crile has confirmed the experimental findings in the course of explorations for brain tumor with a probe in conscious patients. Such explorations elicited neither pain nor evidence of altered physiologic functions. The brain, therefore, contains no mechanism, the direct stimulation of which could cause a discharge of nervous energy in a self-defensive action. That is to say, direct injury of the brain can cause no purposeful nerve muscular action. In like manner, the deeper portions of the spinal region have been sheltered from trauma, and they too show but little power of causing a discharge of nervous energy or receiving trauma. The various tissues and organs of the body are differently endowed with injury receptors, or the noci-ceptors of Sherrington.

The Medical Fortnightly, St. Louis

July 10

60 Pathology of the Vermiform Appendix. W. L. Crosthwait, Holland, Texas.
61 Practical Value of Lip-Reading. M. A. Goldstein, St. Louis.
62 In the Twilight. C. E. Warren, North Easton, Mass.

Boston Medical and Surgical Journal

July 13

63 Municipal Hospital Problems. C. A. Drew, Boston.
64 Practical Experience with My "Duodenal Tube." M. Gross, New York.
65 *Relation of Clean Streets to Tuberculosis. S. H. Stone, Boston.
66 *Treatment of Bone Tuberculosis at the Crawford Allen Hospital. R. Hammond, Providence, R. I.
67 A Case of Rectal Bilharzia. C. N. Meader, Boston.
68 Clinical Note on Pott's Disease. G. C. Moore, Boston.

65. **Clean Streets and Tuberculosis.**—It is emphasized by Stone that there are at least three conditions of street management for which those interested in the campaign against tuberculosis should strive. (1) The smooth-paving and regular cleaning of all streets, not by dry sweeping, but by flushing, or, if this is not possible; by sprinkling before sweeping. Exactly what can be done in winter, when flushing or sprinkling is not feasible, is a problem not yet fully worked out. (2) A minimum height of buildings and a maximum width of streets wherever possible, in order that those unequaled germ-destroyers, the sun's rays and fresh air, may have a chance to do their excellent work. (3) The immediate removal of all rubbish and garbage with the consequent lessening of danger from flies.

66. **Bone Tuberculosis.**—In addition to the outdoor life and the good food, Hammond emphasizes the sea-bathing as carried out systematically at the Crawford Allen Hospital as an important factor in the treatment of these cases. He regards it as a most valuable tonic, and as the children improve in health, apparatus can be dispensed with at an earlier date than was formerly supposed.

The Therapeutic Gazette, Detroit

July

69 Treatment of Spastic Paralysis. A. Lorenz, Vienna, Austria.
70 Blood-Pressure and Pulse-Rate in Pneumonia. E. H. Goodman and R. L. Pitman, Detroit.
71 Causes and Surgical Treatment of Trifacial Neuralgia. T. Blum, Philadelphia.
72 Typhoid Vaccines Prepared at Different Temperatures. W. S. Middleton, Philadelphia.

New York Medical Journal

July 15

73 Determination of the Cause of Death and Some Cases of Sudden Death. H. Oertel, New York.
74 *Health Department Control of Venereal Diseases. P. A. Morrow, New York.
75 Automatism in Insanity. T. H. Kellogg, New York.
76 *Salvarsan in Syphilis. C. F. Marshall, London, England.
77 A Warning Concerning the Use of Salvarsan. W. C. Blusher, Bluefield, W. Va., and E. B. Burchell, New York.
78 Relation of Uterine Fibromyoma to Thyroid Enlargement. J. R. Eastman and H. K. Bonn, Indianapolis.
79 A Bilharziosis Case in Panama. W. Baetz, Ancon, C. Z., Panama.
80 Medical Notes Taken in Frankfort-on-the-Main. D. W. Montgomery, San Francisco.

74. **Control of Venereal Diseases.**—The recognition of these diseases by the health authorities, as "detrimental to health and dangerous to life," the necessity of instituting sanitary measures to protect the public health, Morrow believes, will have an educative value. The board of health could do most effectual service in securing a census of venereal morbidity in this city by sending out circular letters to all physicians requesting a statement of the number of cases treated in private practice, the source of infection, and other data, but not giving the name or address of the patient. Morrow would require that every hospital and dispensary report all cases of venereal disease treated in these institutions. A record of the statistics thus obtained would furnish most valuable data for the education of public opinion as to the enormous morbidity caused by this class of diseases, and the necessity of preventive measures. The entering wedge in the obligatory notification of these diseases should be the enforcement of the sanitary law already enacted by the board of health, requiring a prompt report of every case of ophthalmia neonatorum. This rule has been enforced by the health authorities of Boston for quite a period, and is sustained by both professional and public sentiment.

76. **Salvarsan in Syphilis.**—Even if the administration of salvarsan was free from dangers and inconveniences, there appear to be in Marshall's opinion few indications for its employment in the treatment of syphilis, but the dangers and inconveniences seem to outweigh any possible benefit to be derived from it.

The Proctologist, St. Louis

June

81 The Enema in Gastro-Intestinal Diseases. C. J. Drueck, Chicago.
82 Salvarsan in Rectal Syphilis. J. L. Boehm, St. Louis.
83 Hemorrhoids. E. S. Bishop, Manchester, England.

West Virginia Medical Journal, Wheeling

July

84 Case of Brain Cyst. J. E. Burns, Wheeling.
85 History and Technic of Skin Grafting. L. P. Jones, Pennsboro.
86 Surgery of Inguinal Hernia. R. J. Reed, Wheeling.
87 Puerperal Infection. H. R. Fairfax, McComas.
88 Hydrotherapy and Massage. M. J. Steele, Charleston.
89 Freud's Ideas on Psychoneuroses. T. A. Williams, Washington, D. C.
90 *B. and O. R. R. Emergency Splint. W. P. Megrail, Wheeling.
91 Embryonal Cystic Mixed Tumor. J. E. Cannaday, Charleston.

90. **B. and O. Emergency Splint.**—The splint devised by Megrail can be packed in a shoe-box when not in use, so that it can be conveniently carried in the "first aid box" of the

army or city ambulance, railroad caboose or baggage car, or kept in the office of the mine or mill. The splint can be quickly applied to the patient without removing the clothing, by any person who has had a few minutes instruction, and thus place the injured member in a more comfortable and safe position, the parts being held rigid so that no further damage may be done during transportation. The splint is constructed of metallic bands, rods and small clamps. The bands are rolled out of sheet metal, with a slight taper, and are hinged into two parts so that they may be readily placed around the limb. A strip of adhesive plaster, bandage, or if nothing better is at hand a handkerchief, a piece of string or rope is used to bind them in place. It does not make any great difference whether the ends of the bands entirely meet, or overlap each other to some extent. On the outside of the bands near the margin are three sets of staples placed equidistant around the circumference, and into these are fitted rods of such lengths as will best suit the injured member. These rods can be readily bent to any angle when such a position is desired, and if the patient is very heavy double rods may be placed on each side to give sufficient stability. To apply the splint the bands of proper size are placed above and below the injury and as near the joints as possible. Three or more rods are placed in the staples of each band, then the band is clasped and fastened firmly in place, after which the limb is extended into as near a natural position as possible, and the rods of opposite bands are clamped together. In multiple injuries two or more sections may be joined to each other so that the entire limb may be encased within the splint. This splint has been found of great value in making extension in diseases of the joints, particularly those of the shoulder, elbow, hip and knee.

Northwest Medicine, Seattle

July

92 Some Considerations of Tubal Pregnancies. J. A. Pettit, Portland, Ore.
93 Extra-Uterine Pregnancy. E. C. Rich, Ogden, Utah.
94 Tuberculous Enteritis. Perforation of Tuberculous Ulcer. C. A. Smith, Seattle.
95 Tuberculosis of the Cervical Lymph Glands. W. S. Griswold, Seattle.
96 Arterio-Venous Transfusion by the Crile Method. C. N. Suttner, Walla Walla, Wash.
97 Protein Requirements of Man. C. J. Stedman, Portland, Ore.
98 Anaphylaxis. S. A. Owens, Seattle.
99 Case of Hydatid Cyst of the Liver. O. B. Wight, Portland, Ore.

Medical Record, New York

July 15

100 *Malignant Endocarditis in New York City. T. E. Satterthwaite, New York.
101 *Pasteurization of Milk in the Bottle on a Commercial Scale. C. E. North, New York.
102 Hyperchlorhydria and Chronic Dyspepsia. C. S. Fischer, New York.
103 *Top-Milk and Whey for Infant Feeding. R. E. Van Gieson, Brooklyn, N. Y.
104 Significance of Fear in Mental Disease. A Case of Claustrophobia. M. A. Bahr, Indianapolis.
105 Auto-Inoculation. M. J. Synnot, Montclair, N. J.
106 Methods of Physical Examination in the Diagnosis of Surgical Diseases of the Kidney. H. Neuhof, New York.
107 A Case of Abortive Poliomyelitis. R. Stein, New York.

100. **Malignant Endocarditis.**—In a series of 100 cases analyzed by Satterthwaite, thirty-three showed specific germs in the blood or elsewhere; streptococci were found alone in eighteen; staphylococci occurred jointly with them in one; staphylococci occurred alone in five; pneumococci were associated with them in two; pneumococci occurred alone in six; and the gonococcus in one. Under the age of 3 or 4 the disease almost never occurs. It is largely a disease of early middle life, occurring with greatest frequency between the ages of 30 and 40, almost never under 4, and seldom before 14 or after 60. In the Manhattan State Hospital for the Insane with a total of 58,042 patients treated during the ten-year term ending Sept. 3, 1910, not one case of malignant (infective or infectious) endocarditis was registered as such on the books. On the other hand, in Bellevue Hospital, where between 1902 and 1908 there was a total of 204,690 patients, 222 were registered as having infective (malignant) endocarditis, including both the acute and chronic forms. As a rule, with exceptions in very rare cases, malignant endocarditis is accompanied by fever. High temperature was the rule in this series. In only 7 per cent. was there temperature under 102 F. The pulse-rate seemed to vary with the temperature. Petechiæ were noted in 19 per cent. Hemorrhages were noted in only 5 per cent. Implication of the spleen was found in 8 per cent. Headache and diarrhea were frequent. The leukocyte count varied from 6,650 to 36,000; it exceeded 20,000 in only five instances. In twenty-one out of thirty-three examinations it did not exceed 15,000 (63 per cent.). The hemoglobin content was low, most often under 60. Rheumatism was a concomitant in 37 per cent. Pneumonia came next in frequency (6 per cent.). Tuberculosis existed in 5 per cent.; pleurisy and syphilis each in 3 per cent.; gonorrhea in 2 per cent.; cerebrospinal meningitis in 1 per cent.; mammary abscess, suppurative arthritis, colitis, chancre with suppurative buboes, chronic appendicitis, gangrene of foot and miscarriage each, in 1 per cent.; total 66 per cent. Basing a prognosis on the 100 hospital cases, Satterthwaite concludes that in malignant endocarditis 85 per cent. of the patients die, 10 per cent. improve for a time, how long is uncertain, but that in 5 per cent. there is such a degree of improvement that it may be called recovery, so far as the malignant nature of the disease is concerned. Antigonococcal serum was used in one case, other sera in three cases and vaccines five times. In no case was there recovery under these forms of treatment. The indications are for rest, good and abundant food, the liberation of pus when practicable and the use of sulphate of quinin and perhaps iodin internally, and supporting treatment generally. In the five cases reported as improved or cured it appears that the success was due to the use of expectant treatment. In them no specific was given, but each individual symptom was treated as it manifested itself.

101. **Pasteurization of Milk.**—An experimental investigation of the pasteurization apparatus used in breweries leads North to say that among the rather numerous opportunities which have occurred in the past ten years for making examinations of pasteurized milk he has not before obtained from any pasteurizing apparatus of the commercial type results which nearly approached these in excellence. In less than an hour after leaving the pasteurizer the milk in all the bottles had developed a distinct cream line, and the amount of cream appearing at the top of each bottle was sufficient to indicate that the rising cream had not been in any way impaired. The milk was pleasant to the taste and possessed no odor or taste which would suggest that it had been heated. North is convinced that the pasteurization of milk in the bottle on a large scale is entirely possible and practicable. The placing of milk in a glass bottle with a watertight seal, followed by pasteurization of the entire package, guarantees against infection until the bottle is opened and will place the operation of pasteurization as such above criticism. The adoption of this method by the large milk dealer will be a great step in advance and not only give additional protection for the product, but will also give a guarantee to the milk consumer against milk-borne infections which has not existed up to this time.

103. **Top-Milk and Whey for Infant Feeding.**—The central idea of the formulæ used by Van Gieson is the gradual adaptation of foreign substances to weak digestive powers; the great value of lactalbumin solution as a diluent and nourishing soluble protein; the necessity of preserving it intact by using moderate temperatures to inhibit the action of the enzyme; to preserve as nearly as possible the proportions of one-third lactalbumin to two-thirds proteins.

The Journal of Ophthalmology and Oto-Laryngology, Chicago

July

108 Relief of Glaucoma by Subconjunctival Sodium Citrate Injections. H. G. Thomas, Oakland, Cal.
109 Technic of Radical Mastoid Operations. W. H. Tuckerman, Cleveland.

Interstate Medical Journal, St. Louis

July

111 Clinical Significance of Certain Forms of Albuminuria. A. R. Elliott, Chicago.
112 Blood-Pressure and Barometric Pressure in Pulmonary Tuberculosis. J. L. Pomeroy, Monrovia, Cal.
113 *A New Diagnostic Nervous Sign. C. G. Chaddock, St. Louis.

114 Tuberculin Therapy in Clinic and Office Practice. H. L. Shively, New York.
115 Heat Affections. C. F. Shutt, St. Louis.
116 Genesis of Incipient Pulmonary Tuberculosis. E. Von Adelung, Oakland, Cal.

113. **A New Diagnostic Nervous Sign.**—In making examinations of patients, Chaddock was struck by the ready occurrence of the Babinski phenomenon when the same form of irritation that had elicited it from the sole was applied just beneath the external malleolus, while no response could be obtained from other skin areas of the lower extremities. In cases in which irritation of almost any skin area over the lower extremity and lower abdomen called forth extensor toe response, the external inframalleolar area did not distinguish itself in any way. Impressed by the ready external malleolar response, he became accustomed to begin examinations of the skin reflexes by irritation of the external inframalleolar area. He thought he could always foretell thus what response would come from the sole, i. e., with any response in the sense of extension of one or more, or all, of the toes, or with fanning of them he predicted a Babinski from the sole; with no malleolar response he predicted normal plantar flexion. Very soon, however, he found he could not predict; that what he was expecting failed to occur. He noted the following conditions between the relations of the external malleolar non-response and response: (1) in one case of left-sided cranial fracture with no external malleolar response, there were for some days complete abolition of the right skin reflexes with final return of normal plantar; never any malleolar response; (2) in a number of cases in which he obtained a response from the external malleolus, he obtained normal response from the sole; (3) in a few cases after persistence of external malleolar response and normal plantar response, plantar response became abnormal for a time, then disappeared, leaving external malleolar response, which finally disappeared; (4) in other cases with initial plantar and external malleolar response alike of extension, plantar abnormal response changed to normal plantar response, leaving malleolar reponse persistent; (5) in many cases in which plantar response was mixed, i. e., showing flexion and extension and varying strikingly with place or intensity of irritation and with voluntary jerks, external malleolar response removed any doubt of the nature of the plantar response; (6) in several cases of articular deformity limiting movements of the toes, the absence or presence of external malleolar response was decisive for diagnosis. In no case presenting frank toe-phenomena from the sole has he ever failed to elicit the external malleolar response; in several cases presenting no Babinski and many presenting doubtful Babinski, he has found the external malleolar sign reliable as indicative of central lesion, proved by operation to exist, with its disappearance after operation. He has seen it develop alone, to be joined by a Babinski, and persist after the Babinski had changed to normal; he has failed to find it once in a case of abolition of all skin reflexes from cerebral lesion without Babinski; he has never seen it in a normal individual. Chaddock has found it alone (without Babinski) in general paralysis, in skull fracture, transitory unilateral brain lesions, in old hemiplegias, and in undetermined brain lesions, single and double. He has found it in cord lesions. Never has he found it in peripheral lesions or in unmixed tabes.

Western Medical Review, Omaha, Neb.

July

117 Tubal Pregnancy. C. P. Fall, Beatrice, Neb.
118 Progress of Medicine. R. W. Bliss, Omaha, Neb.
119 *Chronic Diarrhea. H. L. Akin, Omaha, Neb.

119. **Chronic Diarrhea.**—Akin recommends in chronic diarrhea systematic lavage of the colon with medicated solutions; weak solutions of silver nitrate, of sulphuric acid and other substances are employed, but he prefers the use of tannic acid, 1 or 2 tablespoonsful to 1 gallon of hot water. Irrigate the bowel thoroughly, putting the patient in the knee-chest position, if necessary, and urging him to retain a portion of the enema as long as possible. He has found it to be most practical and helpful in employing this plan with patients who are very sick, to use a metal rectal irrigator of the recurrent flow type. The patient is dismissed with careful instructions as to the diet, what to use and what to avoid; he is told how to care for himself should he be threatened with any return of the trouble, and is provided with a prescription for an iron tonic, something after the formula of Senator, who gives as follows:

℞	Gm.	or	c.c.
Liquoris Potassii Arsenitis	15		ʒss
Tincturæ Ferri Chloridi	60	or	ʒij

M. et Sig.—gtt. V in water, t.i.d., and increase 1 drop a day up to 25, then gradually down again.

Journal of Medical Society of New Jersey, Orange

July

120 *Plea for Attaining and Maintaining a High Standard of Medical Education. T. H. Mackenzie, Trenton.
121 *Advance of Knowledge Regarding the Circulation of the Blood. G. W. Norris, Philadelphia.
122 *Education of a Surgeon. J. A. Blake, New York City.
123 Treatment of Acute Purulent Otitis Media. L. Emerson, Orange.
124 History of Movement for State Registration of Nurses. E. Underhill, Philadelphia.

120, 121 and 122.—Abstracted in THE JOURNAL, July 22, 1911, pp. 315 and 316.

The Journal of Abnormal Psychology, Boston

June

125 *Pathology of Morbid Anxiety. E. Jones, London, England.
126 *Fear, Anxiety and Psychopathic Maladies. B. Sidis, Portsmouth, N. H.
127 Freud's Anxiety Neurosis. J. E. Donley, Providence, R. I.
128 Mechanism of Recurrent Psychopathic States—Anxiety States. M. Prince.

125. **Pathology of Morbid Anxiety.**—Attention carefully directed to the study of anxiety states, Jones says, has shown that they are a great deal commoner than is generally supposed, the significance of the symptoms being often overlooked through clinical ignorance. Psycho-analytic research has further made it highly probable that many kinds and degrees of fear that pass for normal, e. g., fear of fire, of mice, etc., take their origin in unconscious complexes and are psychologically as "abnormal" as any phobia. It is assuring to reflect, continues Jones, that much of the fear, and anxiety, that bulks so large in the sum of human distress, even among the so-called normal, is entirely avoidable, and will one day be prevented when psycho-analytic experience is more widely recognized. The conclusions reached by Jones are condensed into the statement that morbid anxiety means unsatisfied love. That already the Greeks had an intuition of the close connection between these two instincts is indicated by their belief that Phobos and Delmos, the gods of fear, were born of Aphrodite, the goddess of love.

126. **Fear, Anxiety and Psychopathic Maladies.**—Sidis says that the anxiety states of neurosis and psychosis are essentially the offspring of fear. The anxiety states are due to the awakening of the fear instinct normally present in every living being. The fear instinct is a fundamental one, it is present in every normal human being, it is only inhibited by the whole course of civilization and by the training and education of social life. Like the Jinn of the Arabian nights, it slumbers in the breast of every normal individual and comes fully to life in the various neuroses and psychoses. The feeling of anxiety with all its accompanying phenomena is one of the manifestations of the most fundamental, the most potent of animal instincts, the fear instinct which is at the basis of all psychopathic maladies.

Journal of the Kansas Medical Society, Kansas City

July

129 Physical Supervision of the School Child. O. P. Davis, Topeka.
130 Acute Intestinal Obstructions. R. C. Lowman, Kansas City.
131 Diagnosis. E. E. Hubbard, Shawnee.
132 Five Cases of Ectopic Pregnancy. E. E. Morrison, Great Bend.
133 Supervention of Carcinoma on the Site of Chronic Ulcer of the Leg. D. W. Basham, Wichita.
134 Cardiac Arrythmia. T. Jager, Wichita.

Surgery, Gynecology and Obstetrics, Chicago

July

135 *Diagnosis and Treatment of Contracted Pelves. J. M. M. Kerr, Glasgow, Scotland.
136 *Salpingostomy and Pregnancy. G. Gellhorn, St. Louis.
137 *Salpingitis. F. T. Andrews, Chicago.

138 *Anteflexion of the Cervix and Spasm of the Uterine Ligaments in Relation to Retroversion, Dysmenorrhea and Sterility. E. Reynolds, Boston.
139 *End-Results When Hysterectomy Has Been Done and an Ovary Left. J. O. Polak, Brooklyn, N. Y.
140 *Is There Any Clinical or Experimental Proof that the Ovary Has an Internal Secretion? W. H. Morley, Detroit.
141 *Membranous Pericolitis. H. S. Crossen, St. Louis.
142 *The Function of the Ovary. R. T. Frank, New York.
143 Ovarian Transplantation in Lower Animals and Women. F. H. Martin, Chicago.
144 *Conservation of the Ovary. W. W. Chipman, Montreal, Canada.
145 So-Called Essential Hematuria, with Especial Reference to the Hematuria Accompanying Mild Grades of Nephritis. B. R. Schenck, Detroit.
146 Electric Lights for Warming the Operating Table. H. Robb, Cleveland.
147 *A Malignant Intestinal Growth Requiring the Removal of an Unusual Number of Abdominal Structures. T. S. Cullen, Baltimore.
148 *Getting Up Early After Grave Surgical Operations. H. A. Kelley, Baltimore.
149 *Transplantation of the Left Knee-Joint. G. T. Vaughan, Washington, D. C.
150 One Hundred Consecutive Cases of Pelvic Affections in Which Vaginal Drainage Has Been Employed. A. W. Elting and J. L. Donhauser, Albany, N. Y.

135, 136 and 137.—Abstracted in THE JOURNAL, June 24, 1911, pp. 1911 and 1912.

138, 139 and 140. Abstracted in THE JOURNAL, July 8, 1911, pp. 160 and 161.

141. **Membranous Pericolitis.**—The distinctive symptoms of the three cases cited by Crossen develop from two factors; (1) interference with the peristalsis of the colon and (2) gas distension of the cecum. The pains, though coming in attacks, somewhat like appendicitis or salpingitis, present the features of pain from distension rather than from inflammation. That is, there is no fever, there is not the acute disability caused by peritoneal inflammation, there is not the strictly limited point-tenderness that comes with an inflammatory focus. The pain and tenderness are more or less diffused throughout the right lower abdomen, there is decided gas distention with the attacks of pain, there is a history of the trouble beginning gradually and increasing persistently for one or more years, and there is a history of chronic constipation for many years before the onset of the distinct painful attacks. Other conditions may be associated with the membranous pericolitis, giving atypical cases in which may be found appendicitis, salpingitis or other lesions of adjacent organs with a consequent mingling of symptoms. Speaking of the atypical cases of membranous pericolitis, Crossen wishes to call attention to three important points. 1. The frequent confusion with chronic appendicitis or adnexal disease, because the pain is located in the right lower abdomen and comes in attacks. 2. The necessity of exploration of the ascending colon in all cases in which the adnexal or appendical lesion exposed at operation does not account for the serious symptoms presented by the patient. 3. The question of treatment. The treatment so far has been simple removal of the membrane, with subsequent regulation of the bowels and abdominal support to prevent distention of the cecum. If it fails to effect a permanent cure, then more radical measures will be necessary, particularly in the severe cases, such as excision of the colon, anastomosis of the ileum with the sigmoid, the latter being preferred by Crossen.

142 and 144. Abstracted in THE JOURNAL, July 8, 1911, pp. 159 and 160.

147. **A Malignant Intestinal Growth.**—In removing a carcinoma of the sigmoid, several feet of small bowel, the uterus, tubes, ovaries and appendix, in one mass, were also removed by Cullen. The patient on her return to the ward showed a moderate degree of shock. After a week or two she had slight diarrhea, but otherwise manifested no untoward symptoms. At the end of five weeks she returned home in relatively good condition. In June, 1911, about eighteen months after the operation, the patient was rapidly losing weight, had a great deal of abdominal pain, and from the present indications will not survive over a month or six weeks.

148. **Getting Up Early After Grave Surgical Operations.**—Kelly strongly endorses the use of the Gatch frame. He believes that by its use he has secured all the advantages of getting the patient out of bed early, without the awkwardness, the exertion and the disturbance of getting out and in. The convalescence thus takes place in a more or less upright position. If the patient gets tired of the posture after an hour or two, the frame is readily let down nearly flat, when after a little rest it is raised again. In this way, the circulation is improved, the abdominal walls are kept relaxed and the patient makes a prompter, better and a safer recovery. He believes that the general use of these bed frames will enable us to extend to a larger number of patients than we have found possible in the past the advantages claimed by Boldt for his more radical procedure. At any rate it is a happy compromise for the timid surgeon who does not want to drag a miserable, depressed, suffering patient out onto the floor so soon after an aggressive operation.

149. **Transplantation of Left Knee-Joint.**—In a case of tuberculous knee-joint, Vaughan transplanted a normal knee obtained soon after the death of the person. The new joint was placed between the sound ends of the femur and tibia and fastened with four wire and several catgut sutures. The patella was placed in position in front of the new joint, and the ligamentum patellæ was united. The joint was too wide to permit closing of the soft parts, so the outer part of the femur and tibia was trimmed off until it was reduced to the proper size. Opening for drainage was left on each side and the skin was united with silkworm sutures. Gauze and thick cotton dressings were applied. The transfer was made within three hours after the donor's death. There was almost immediate improvement in the patient's condition, pulse and temperature came down from 96 to 72 and 101 to 99 F., respectively, and the pain was less, but suppuration continued and became more copious than ever as time went on. The suppuration continued freely, requiring daily dressing, but the temperature and pulse were not high, ranging from 98.6 to 100 F. and 72 to 90, respectively, and the patient often expressed himself as feeling more comfortable than he had felt for years. A profuse diarrhea set in and death occurred one year, six months and twenty-one days after the operation. Dissection of the parts involved in the operation revealed the following: The transplanted parts had been largely absorbed and their place taken by new bone which had grown into them, at least two-thirds of the foreign bone had disappeared. This was more marked in the tibia, only a thin shell of which was left. Superficial caries existed in the exposed parts which had never healed over. The cartilages had all disappeared. There was only partial union in the femur but fairly good bony union existed in the tibia. There was no union of the articular surfaces with one another except of the patella, which was slightly united by bone with the new portion of the femur, which had partially replaced the transplanted portion. It was evident from the examination that a process of absorption of the transplanted parts was going on as the new bone formed and took its place, the new bone gradually eating up or causing the absorption of the foreign bone.

Colorado Medicine, Denver

July

151 First Year's Experience with the (Bates') Colorado Law for the Examination and Care of Public School Children. M. E. Bates, Denver.
152 Diseases of the Seminal Vesicles. P. J. McHugh, Fort Collins.
153 Intraperitoneal Cystotomy. C. E. Tennant, Denver.
154 Violent Ophthalmia Catarrhalis or Non-Specific Suppurative Ophthalmia. Congenital Cataract. F. E. Wallace, Pueblo.
155 Old Dislocation at the Shoulder. G. W. Miel, Denver.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

July 8

1 Cardiovascular Degeneration. J. M. Bruce.
2 Outlines on Medical Hydrology. R. F. Fox.
3 *Rhizotomy. O. Förster.
4 *Rhizotomy. E. W. H. Groves.
5 *Three Cases of Fibroid Tumor of the Uterus Spontaneously Fatal. A. H. N. Lewers.
6 Therapeutic Effects of Carbon Dioxid Snow. Methods of Collecting and Applying It. J. Hall-Edwards.
7 Three Cases of Tooth-Plate Impacted in the Esophagus and Pharynx. L. E. C. Norbury.
8 Mice Immunized Subcutaneously Are Resistant to the Implantation of Cancer in Internal Organs. W. H. Woglom.
9 A School Outbreak of Enteric Fever. R. W. C. Pierce.

3. **Rhizotomy.**—This operation has now been performed altogether twenty-five times in Förster's service for gastric crises; twenty-two of the patients survived and three died. Three patients succumbed to the immediate effects of the operation; two showed no improvement, the crises persisting. In the remaining twenty cases the operation was successful. Immediately after the resection of the roots the crises disappeared, the body weight increased greatly, and the general condition showed a marked improvement; some of the patients, who until then had been confined to their beds for a long time, have since regained their power to work. In the majority of these cases (thirteen) no relapse has been reported. In several there has been no recurrence of the crises for many months and even for over a year, although before the operation a continuous critical state had persisted. In the remainder of the cases (seven) the crises ceased for a while, but subsequently recurred. Yet, even in these, the critical state has not returned. The crises only occur occasionally, at long intervals; they are of short duration and of moderate intensity. Among this latter group of cases are three patients who have regained the power of gaining a living, one of them being an architect and one a mason.

Förster says that in a number of cases the result of the operation is not perfect, because the system of roots carrying sympathetic nerve fibers of gastro-intestinal origin is very extensive. By the method which has hitherto been practiced of cutting only the seventh to ninth or the seventh to tenth thoracic roots the source of the crises is not always entirely eliminated. Probably the fifth and sixth, as well as the eleventh and twelfth, thoracic roots are also concerned. It is therefore desirable to remove as many of the roots as possible. What is even more important is to determine in every case exactly the situation of the pain, the extent of the hyperesthesia of the skin, and the site of its maximum intensity, since these data may possibly afford a guide as to which roots are chiefly irritated and concerned in causing the crises. The operation has been performed in sixty-two cases for spastic paralysis due to disease of the cortico-spinal path, especially the pyramidal tract; fifty-six patients survived, five died. Thirty-eight of the survivors had congenital spastic paraplegia (Little's disease); almost all of these patients have been benefited by the operation, some of them showing a very marked improvement. Three patients with acquired cerebral spastic paralysis were treated successfully, one of them being a case of hydrocephalus with severe spastic paraplegia. Of four cases of spastic spinal paralysis of traumatic origin, two were successful; of the remaining two, which were failures, in one wrong roots were cut, while in the other the cortico-spinal fibers appear to have been completely interrupted; in this case the spasms disappeared, but voluntary motility did not return. In addition there was one case of Pott's disease which was successful; also two cases of syphilitic spastic paraplegia (Erb), successful; one case of primary spastic paraplegia (Erb-Charcot), successful; two cases of disseminated sclerosis, one of which was not benefited, while the other was at first successful, but subsequently the disease progressed rapidly and the patient died. Of seven cases of spastic paralysis of the arm, five were successful. The remaining two were not benefited owing to the complete interruption of the cortico-spinal paths; in these patients the spasms disappeared, but voluntary motility did not return.

As regards the indications of the operation Förster says that only lesions with real reflex spasticity, as the result of the loss of the cortico-inhibitory fibers, are suitable, but not the diseases of the type of chorea, athetosis, mobile spasms, and spasmodic torticollis; possibly, however, Parkinson's disease may be suitable. Second, there must be a reasonable prospect of innervating fibers of the pyramidal tract still existing, all cases with slight spasms and considerable paralysis being unsuitable. In cases of severe spasms and total voluntary paralysis there may remain a considerable amount of voluntary excitability, only obscured by the spasms and only apparent after their elimination. In such cases the experiment is worth trying. Third, the disease must have become practically stationary, while progressive diseases like disseminated sclerosis are hardly suitable, very slowly progressing ones, like spastic spinal paralysis, being perhaps more promising. Good results can only be obtained with very careful exercise treatment. Such exercises should be continued for years, during which continuous progress may be observed. The assistance of orthopedic measures cannot be dispensed with; above all, it is necessary to place the limbs in removable plaster splints in such a position as to correct the previous deformity. These positions are required during the whole time immediately following the operation, the limbs being only removed from their plaster cases for the purpose of the exercises, which should be carried out several times a day; later they should still be kept in the splints at night. If, besides the real spastic contractions, there are also organic contractions due to shriveling of the muscles and tendons, tenotomy or tenoplasty may also have to be performed.

4. **Rhizotomy.**—For the relief of pain Groves regards the operation of posterior nerve-root resection (rhizotomy) as a somewhat uncertain proceeding. Patients who present very great pain without any organic disease are often of a highly neurotic temperament, and their pain seems to have an important psychical element which is not relieved by the operation. For the relief of visceral crises the operation holds out the only prospect of radical cure which we know of at present. Only those cases of this kind are suitable in which all other means of relief have failed, but on the other hand it is important not to wait until the patient has become debilitated by the emaciation and morphin. In cases of spasm associated with lesions of the pyramidal tract the operation has its largest field of usefulness. Spasm is in all these cases definitely relieved, and if the pyramidal tract is not wholly severed a great improvement of motility results. The operation causes definite chromatolysis of some of the motor cells in the anterior horn of the segments involved, and this is probably associated with the lessening of motor spasm. By the use of epinephrin (adrenalin) injections as a preliminary to the operation the procedure becomes an almost bloodless and speedy one. There is no special shock associated with the division of the posterior nerve-roots. It is better to perform the whole operation in one stage. In dealing with the brachial roots it is best to do a hemilaminectomy. The lumbo-sacral roots are best approached at their junction with the cord rather than at their point of exit from the dura.

5. **Uterine Fibroid Tumor.**—In the three cases reported by Lewers, death resulted in one instance from hemorrhage, in another from pulmonary embolism and in the third case from sudden collapse and heart failure.

Medical Press and Circular, London

June 28

10 Ophthalmology in General Practice. C. Worth.
11 *Early Diagnosis and Treatment of Sacro-Iliac Disease. W. I. deC. Wheeler.
12 Should Not Something Be Attempted Against the Spread of Venereal Disease? E. Pelletier.
13 Heredity, Eugenics and Human Welfare; A Plea for a Larger Outlook. J. L. Taylor.

July 5

14 Signs and Diagnosis of Diabetic Coma. H. Rathery.
15 Vaccine Therapy. A. V. Elder.
16 Operations for Varicose Veins. R. E. Kelly.
17 Choice of Operation for Varicose Veins. K. W. Monsarrat.

11. **Sacro-Iliac Disease.**—Wheeler emphasizes that sacro-iliac disease, once well established, is a very fatal one. Radical treatment in the early stages offers a good chance of recovery. The signs and symptoms usually described do not exist in the stages of the disease in which treatment promises most. Vague and persistent pains in the sacro-gluteal and lumbar regions, especially when referred down the sciatic nerve as far as the knee, with no history of previous similar attacks which got well, should arouse suspicions of sacro-iliac disease, no matter what the age of the patient. A radiograph gives valuable information. Early operation to expose and remove the focus of the disease is indicated in this joint as in others. The joint is not inaccessible, and is easily reached through the iliac bone in the center of the fossa occupied by the gluteus medius muscle.

Dublin Journal of Medical Science

July

18 The National Insurance Bill. J. B. Story.
19 *Clinical Reports of the Rotunda Lying-In Hospital, Dublin, 1909-1910. E. H. Tweedy.
20 The Medical Inspection of Schools. D. M. Moffatt.
21 Some Points in the Administration of Anesthetics. J. S. Darling and C. F. Williamson.

19. **Report of the Rotunda Hospital.**—During the year 1909-1910, there were 2,524 admissions to the maternity wards and 2,222 deliveries, with a morbidity of 2.01 per cent. Fourteen women were treated for eclampsia with no death, making a series of twenty-nine cases extending over two years and ten months without any maternal mortality. Morphin, beginning with ½ grain, followed at frequent intervals with ¼-grain doses, was given. Six patients received stimulation as represented by atropin, digitalin, whisky by rectum and hypodermics of ether. One had scopolamin with the morphin. Eight had gastric lavage and purgatives by stomach tube, ten rectal lavage and nine submammary infusion of sodium bicarbonate solution. Six had linseed meal poultices to the loins. One patient required artificial respiration. All forms of eclampsia are represented, ante-, intra-, and postpartum, with combinations of each. Three patients were delivered with forceps when the os was fully dilated; one woman had twins, both of which were delivered with forceps. Labor was never induced. Starvation was rigidly enforced. No fluid (water, croton oil, etc.) was ever placed in the mouth of an unconscious patient. Delivery by the breech was accomplished in seven cases. One of these had placenta prævia, for which the usual treatment was adopted. Version was performed four times for prolapsed cord in contracted pelvis. All of these children were born alive. Two dead children were perforated, one in a woman with a 6 cm. pelvis, the other after forceps had failed to deliver. Her conjugate was 9 cm. Three children were delivered with forceps, one dead. Classical Cesarean section was performed once. Six patients were treated by sub-cutaneous pubiotomy, and two by extraperitoneal Cesarean section.

Clinical Journal, London

June 28

22 Paths of Infection of the Urinary Tract. W. B. Clarke.
23 Abdominal Emergencies; Intraperitoneal Hemorrhage. R. Morison.
24 Present Position of the Treatment of Uterine Fibromyomata by Roentgen-Rays, with details of Bordier's Technic. J. C. Webb and H. Bordier.

July 5

25 The Vasomotor Factor in the Causation and Treatment of High Blood-Pressure. H. French.
26 Paths of Infection of the Urinary Tract. W. B. Clarke.

Practitioner, London

July

27 Renal Adenomata. Sir H. Morris.
28 Surgical Aspects of Early Renal Tuberculosis. D. Newman.
29 Endocarditis. G. Rankin.
30 Acute Unilateral Pyelonephritis. S. Pringle.
31 Value of Urinary Examination in Dermatologic Practice with Special Reference to the Joulie Reactions. E. G. Little.
32 *Clinical Aspects of Acute Appendicitis in Children. H. Collinson.
33 Hereditary Syphilis and Its Treatment by Salvarsan. J. L. Bunch.
34 *Hyoscin-Morphin Anesthesia in Obstetric Medicine. P. L. Giuseppi.
35 *Treatment of Cases of Arterial Hypertension. L. T. Thorne.
36 *Sea-Bathing. A. H. Copeman.
37 *Pallor—Its Clinical Significance. G. R. Ward.

32. **Acute Appendicitis in Children.**—Collinson shows that appendicitis in children is a common disease, a serious disease and one which demands operative treatment at the earliest possible moment.

34. **Hyoscin-Morphin Anesthesia.**—A summary of Giuseppi's paper elicits the fact that he believes that the object of hyoscin-morphin anesthesia is, not to produce complete unconsciousness, but to produce twilight sleep, from which the patient can be roused at any moment, without her retaining any recollection of what has happened in the meantime. He says that in hyoscin-morphin anesthesia we have an efficient means of controlling pain, and one that is practically safe, when ordinary precautions are taken. There is danger to the child unless the fetal heart is carefully auscultated at frequent intervals. The course of labor is but slightly modified. The administration and repetition of the injections must be gauged by the amount of suffering. The author advises that morphin should never be repeated, only the hyoscin. The solutions for injections must be freshly prepared for each patient. The best dose is hyoscin hydrobromid, gr. 1/100, morphin sulphate, gr. ¼.

35. **Arterial Hypertension.**—It is Thorne's purpose to prove by practical example that the majority of the painful and dangerous symptoms which are commonly regarded as directly due to hypertension are, in reality, the result of cardiac inadequacy and dilatation consequent on a pathologic condition of which hypertension is one of the signs; and that our treatment of such cases should not be by the administration of drugs which are reputed directly to lower arterial tension and act as depressors on an already defective cardiac action, but by a method which will reduce arterial tension, and at the same time, improve the tonicity and contractility of the heart, so that we may render that organ more able to cope with the excessive work thrown on it, and more fitted to throw off, by an improved circulation, the toxic poisons causing hypertension. The only treatment that Thorne has found of any lasting value in this class of case is the administration of a course of mineral baths prepared artificially so as to resemble, in all active ingredients, the natural baths of Nauheim. In combination with this treatment, a dietary is given in which carbohydrates are taken sparingly, and a definite amount of physical exercise is prescribed if the patient is in a fit condition to take it.

36. **Sea-Bathing.**—Those with feeble circulation are advised by Copeman to bathe only when the weather is very warm and the sea calm, and none but the very robust should bathe more than once a day. He says that it is a common error to suppose that if the bather arrives at the water-side heated by exercise he should wait till he has cooled down before entering the water. On the contrary, it is most unwise to bathe when the body is already chilled, and the bather would do well to delay until some gentle exercise has restored the circulation. Continuous paddling cannot be too strongly discouraged.

37. **Pallor.**—That pallor is not always indicative of a blood disease is shown by cases cited by Ward and which he uses to emphasize the necessity of the greatest care and thoroughness in arriving at a diagnosis. Pallor may be normal, due to lead poisoning, congenital anemia, continued slight hidden hemorrhage, intestinal parasites, etc.

Indian Medical Gazette, Calcutta

June

38 An Epidemic of Pyrexia of Uncertain Origin. G. E. Stewart.
39 Night-Soil Conservancy in Cantonments. P. Hehir.
40 Drugs and Drug Habits in Burma. R. H. Castor.
41 Intracapsular Removal of Cataract. H. F. L. Taylor.
42 A Modification of Major Rogers' Apparatus for the Treatment of Cholera by Hypertonic Saline Infusion. T. C. Rutherfoord.
43 A Case of Subconjunctival Cysticercus Cellulosæ. R. H. Elliott and A. C. Ingram.
44 Multiple Cysticercus Cellulosæ of the Brain. T. S. Tirumurti.
45 Intravenous Administration of Salvarsan. H. R. B. Gibson.
46 Lipofibroma of the Tonsil. H. Suhrawardy.
47 Osteomalacic Pelvis, Full-Term Pregnancy, Porro's Operation. L. G. Fischer.
48 A Case of Rupture of Uterus in an Old Cesarean Section Scar. A. G. Coullie.
49 Anesthetics. E. F. Neve.

Annales de Gynécologie et d'Obstétrique, Paris

June, XXXVIII, No. 6, pp. 321-384

50 *Muscular Fibers in Uterus and Its Ligaments. (La musculature des ligaments de l'utérus et la répartition des faisceaux musculaires dans l'utérus.) Ivanhoff.
51 *Non-Gonococcus Ophthalmia in Newly Born Infants. (L'ophtalmie à inclusions.) V. Morax.
52 Treatment of Old Inversion of the Puerperal Uterus. A. Couvelaire.
53 *The Trendelenburg Position Effectual for Correction of Retroversion of Gravid Uterus. M. Ferré.

50. **Distribution of Muscular Fibers in the Uterus and Its Ligaments.**—Ivanoff's article is profusely illustrated and his research brings out new points, he says, which modify our conception of physiologic and morbid processes in the region and should modify the methods of treatment of pathologic conditions and management of childbirth.

51. **Ophthalmia Neonatorum Not Due to the Gonococcus.**—Morax reviews the history of the "inclusions" in the cells which Prowazek found in trachoma and not in other forms of conjunctivitis but whose specificity was apparently disproved by Uhthoff's discovery of the same inclusions in certain forms of ophthalmia neonatorum and Lindner, by inoculation of monkeys, revealed their presence in the vaginal secretions of the mothers and in a certain form of urethritis in males. These facts were at first supposed to contradict the original deductions but further research has shown that they are all apparently links in one chain, all proving the existence of a special type of inflammation involving the mucosa of urethra, vagina and eyes, transmissible from the urethral to the vaginal mucosa and from the latter to the conjunctiva of the eyes of the child at birth, the clinical manifestations being tumefaction and moderate secretion of the mucosa. The microscope reveals in some of the epithelial cells of the mucosæ involved certain inclusions in the form of a bunch of fine points or double points enclosed in an intra-epithelial pocket or cyst-like formation in the shape of a crescent or sphere and apparently not influencing otherwise the cells containing them. Ophthalmia neonatorum not the work of the gonococcus is generally of this inclusion type, Morax states, and silver nitrate prophylaxis has no influence on it. Sometimes this type accompanies the ordinary type of ophthalmia neonatorum. The inclusion ophthalmia may persist for weeks up to two months in spite of the most approved and systematic measures of treatment and leave a thickening of the conjunctival culs-de-sac in the form of a series of parallel folds seen when the lower lid is everted, but there seems to be no danger of ulceration of the cornea. Morax found the inclusions in fifteen out of twenty cases of ophthalmia neonatorum and Lindner found them in fifty-three pure and in four cases mixed in 110 cases of ophthalmia.

53. **The Trendelenburg Position in Treatment of Retroversion of the Gravid Uterus.**—Ferré states that he has applied this position treatment in five cases of retroversion of the gravid uterus and the displacement gradually corrected itself without further aid. In a fifth case uncontrollable vomiting compelled the emptying of the uterus before the displacement had been entirely corrected. One patient was a ii-para approaching the fourth month and vague abdominal pains alarmed her, as she had experienced similar pains during her first pregnancy, which had terminated in a miscarriage. The foot of the bed was raised by 30 cm. and the patient kept in this position without a pillow for forty-two days, at the end of which time the uterus was found to be above the upper inlet and the patient was allowed to get up and was delivered at term of a healthy son now 16; during a later pregnancy the retroversion did not recur. In the other cases the uterus thus spontaneously righted itself in three, six or forty-five days, and the pregnancy then proceeded to normal term.

Presse Médicale, Paris

June 21, XIX, No. 49, pp. 517-524

54 Mechanical Causes and Changes in the Blood in Origin of Hydrops. (Pathogénie des oedèmes dyscrasiques.) Debove.
55 *Diagnosis of Appendicitis. (Diagnostic d'appendicite et "douleur-signal.") G. Leven.

June 24, No. 50, pp. 525-536

56 Sporotrichosis Bone and Joint Lesions. (Lesions ostéo-périostiques et articulaires de la sporotrichose.) E. Jeanselme, P. Chevallier and P. Darbois.
57 *Ultimate Outcome of Bone Grafts. (Greffes osseuses intra-granuleuses datant de vingt-cinq ans.) A. Poncet.
58 Roentgen-Ray Findings with Urolithiasis. L. Bazy and J. Desternes.

June 28, No. 51, pp. 537-544

59 Rôle of Meningitis in Development of Psychoses. L. Lagriffe.

55. **The "Pain Signal" in Differentiation of Gastroptosis and Appendicitis.**—Leven states that when the stomach is stretched and dilated it is liable to induce a typical pain at McBurney's point and simulate appendicitis. When radioscopy is not practicable, the condition can be differentiated by the subsidence of the pain when the stomach is lifted by pressure from without. He has the patient sit for the test; the region most painful on deep palpation between the umbilicus and the xiphoid appendix is determined and the patient or an aid presses his thumbs into this region to keep up the pain. Then Leven applies his thumbs to the median line close to the pubis and tries to raise the contents of the abdomen, pushing them up by pressure of his thumbs worked into the abdominal wall, working gradually upward. When he thus reaches a certain point, the patient suddenly feels that the pain ceases. This occurs when Leven has thus reached and lifted the bottom of the stomach, thus removing the pressure which the stomach has been exerting and which has been causing the pain. When the pain persists unmodified with this maneuver, then some other cause for it must be sought.

57. **Bone Grafts in Restoration of Tibia.**—Poncet reports the excellent outcome twenty-five years later in a case in which the right tibia was almost totally destroyed by a rapidly acute osteomyelitis. The patient was a boy of 13 and a month after resection of the diseased shaft for an extent of nearly 12 inches, leaving the periosteum intact except for a gap above and below, Poncet introduced flaps of bone tissue with periosteum taken from a healthy newly born infant who had succumbed during breech delivery. The scraps were 7 or 8 mm. long by 3 or 4 thick and they were implanted deep among the granulations at the points where the periosteum was lacking. Five out of eight flaps "took," and two weeks later a new series of bone grafts was made with bones from a kid. All the bone scraps together covered an area at each end of the shaft 4 cm. long by 4 or 5 mm. thick. The wound did not heal completely till the fifth month, but the bone regenerated with the aid of the grafts so that the diameter of the two legs scarcely differs. By the end of three months there was a difference in length of only 3 cm. between them, but this difference increased so that now, twenty-five years later, the difference is 8 cm. as the other leg has grown in length more than the right, but both legs are equally strong and look alike and there is complete restoration of function while radioscopy shows a satisfactory outline of the new tibia. The patient is now a robust man of 38. One secret of success is to keep the patient under observation for a long time after these grafts of bone in the midst of granulations; the granulations supply the nourishment and other conditions which insure success.

Revue de Gynécologie, Paris

May, XVI, No. 5, pp. 441-552

60 Changes in Fallopian Tubes During Menstruation and Pregnancy. M. J. Katz.
61 *Echinococcus Pelvic Disease in Women. (De l'importance de l'échinococcose dans le diagnostic des affections gynécologiques.) Abadie-Feyguine and Abadie.
62 *Radiotherapy and Uterine Fibromyoma. H. Bordier.

61. **Echinococcus Pelvic Disease in Women.**—Abadie and Feyguine have found that echinococcus cysts, single or multiple, have often proved misleading in the diagnosis of gynecologic disturbances in their practice at Oran. Such cases are comparatively frequent and they urge others to bear this possibility in mind without waiting to have it impressed on them by some blunder in diagnosis. They report five cases of pelvic cysts, one a retrovesical cyst, taken for a uterine fibroma or ovarian cyst. In the second case the echinococcus cyst was in the right broad ligament, in the third there were numerous cysts scattered over the peritoneum; the area of the omentum involved was resected and a formaldehyde solution injected into the largest cysts on the lesser omentum. The general health was fairly good afterward for two years although the cysts continued to develop slowly. The patient declined further operative measures and died four years after the first intervention. The fourth patient had cysts scattered over the peritoneum with much ascites. No operation was attempted. The fifth patient was a young woman with cysts in the peritoneum probably secondary to one in the liver. Two operations were performed but proved unable to arrest the fatal termination. Their patients were from 21 to 30 years old, with one of 61. They review also thirteen cases from the literature, including two from Russia. Cysts in the pelvis and omentum are readily resected, and repeated operations may cure in apparently hopeless cases (Devé and Morestin). The precipitation test may clear up a dubious diagnosis but the deviation of complement test is more exact.

62. **Radiotherapy of Uterine Fibromyomas.**—Bordier reports eighteen cases to show the effectual therapeutic action of

the Roentgen rays on uterine fibromyomas and on climacteric hemorrhages. The best results are obtained when the growth is less than five years old, and the patients between 40 and 50. Fibromyomas that have degenerated and those with a tendency to cysts and hydrorrhea do not seem to be amenable to this treatment. He graduates the dosage by a chromoradiometer based on the iodin liberated by the Roentgen rays in a chloroform solution of iodoform. The anticathode is chilled with water and he uses aluminum filters, and applies the rays from each side and on the median line in turn. The rays induce retrogression of the fibromyoma and of the follicular epithelium of the ovaries while the internal secretion of the ovaries does not seem to be modified until long after.

Semaine Médicale, Paris

July 5, XXXI, No. 27, pp. 313-324

63 *Carbohydrates in the Treatment of Diabetes Mellitus. L. Blum.

63. **Carbohydrates in Diabetes.**—Blum reviews the history of the dietetic treatment of diabetes, especially the oatmeal cure, and gives the tabulated details of the special diet and metabolism in sixteen cases of diabetes. His experience and research throw light on the mechanism of the oatmeal cure. They suggest that the excessive proportion of sugar in the blood is an essential factor in the clinical picture of diabetes. When the patient fasts, this sugar is drawn out of the blood and tissues, and restriction to a diet of green vegetables is almost equivalent to fasting. This explains the advantages from restriction to green vegetables for a day or two before commencing the oatmeal cure. It also explains the fluctuation in the tolerance. The condition of the kidneys is another important factor; the kidney cells may become less permeable for the sugar in the blood than normal kidney cells—Neubauer has found an excessive proportion of sugar in the blood in some nephritics without any glycosuria; glycosuria may disappear in the course of nephritis. Blum presents evidence to prove that the success of the oatmeal cure is dependent on the intensity of the disease, proving most effectual in the milder cases. Lampe has reported that von Noorden found that sixty-five were not benefited among the 310 patients given the systematic oatmeal cure, while the condition was aggravated in thirty-five, but Blum, by following the above principles, obtained excellent results in thirty-five cases. In the mild forms the old dietetic methods are equally effectual but even with these the oatmeal cure is more rapid, more easily managed and is accepted better by the patients; it seems to be immaterial whether oatmeal or wheat flour is used. For this class, that is, those who have 20 or 30 gm. of sugar after ingestion of 100 gm. of bread, he gives 200 or 250 gm. of oatmeal with as much butter and, sometimes, three or four eggs or 50 or 75 gm. of some vegetable albumin. After three days he interposes a day of green vegetables only, and the last traces of glycosuria disappear. When the glycosuria is a little more severe he commences with 125 to 150 gm. of the oatmeal but permits the same quantity of butter as above. Such a diet gives plenty of calories. With the severer form of diabetes with acidosis, the oatmeal cure has superior advantages, but not more than 100 gm. should be allowed for a day or two then only 75 gm. for a few days and then a vegetable day. In the mild form it is unnecessary to precede the oatmeal cure with the starvation vegetable day and in the severe form it may be dangerous, while there is every advantage in interposing a vegetable day after two or three days of the oatmeal cure.

Beiträge zur Klinik der Tuberkulose, Würzburg

XX, No. 1, pp. 1-214. Last indexed July 1, p. 52

64 *Tuberculosis in the Liedolsheim District. (Ein Beitrag zur Pathogenese der Tuberkulose.) K. Dörner.

64. **Pathogenesis of Tuberculosis in a Given District.**—The 214 pages of this issue of the *Beiträge* are devoted to a detailed study of conditions in the Liedolsheim district, about 40 miles north of Carlsruhe, Baden, as regards the distribution and inheritance of tuberculosis in a homogeneous population in which tuberculosis is exceptionally frequent and cancer rare. The records since 1852 for a population ranging from 1,812 to 2,084 are tabulated for adults and children under various headings, the mortality from tuberculosis in families, the influence of the dwelling, food, climate and occupation, etc., while 134 pages are devoted to the detailed records of the various families. All the data confirm the danger of infection of the well in a tuberculous environment and the influence of insanitary homes, and that direct inheritance of tuberculosis is a negligible factor in comparison with living in close contact with a consumptive. Dörner does not think that the public sanatoriums are of much use in general prophylaxis of tuberculosis as they do not admit the advanced cases, and these are the ones dangerous for their environment. The recent increase in the fatal non-tuberculous pulmonary affections tends to offset any improvement in the mortality from tuberculosis. The aim should be, he declares, to improve the economic and health conditions in the rural districts and villages; this would not only strengthen the very foundations of the state but would counteract the trend to the cities. In the district studied over half the total deaths from tuberculosis occurred in one-room houses, 15 per cent. of the total houses having 36.4 of all the deaths.

Berliner klinische Wochenschrift

June 26, XLVIII, No. 26, pp. 1165-1212

65 *Fluctuations in Course of Syphilis of the Nervous System. (Ueber die Schwankungen im Verlauf der Nervensyphilis.) J. Benario.

66 *Adapting Capacity of the Organism as a Guide in Treatment. (Ueber die Anpassungsfähigkeit des Organismus in ihrer Beziehung zur Pathologie und Therapie.) M. Katzenstein.

67 Behavior Under Tuberculin of Inflammatory Processes in the Skin. (Verhalten entzündlicher Bildungen der Haut gegen Tuberkulin.) A. Sternberg.

68 Poisoned Arrows from Central Africa. (Giftpfeile aus Kilo von der centralafrikanischen Seenexpedition Seiner Hoheit des Herzogs Adolf Friedrich zur Mecklenburg, 1907-1908.) M. Krause.

69 *Transplantation of Female Genitals into Male Dogs and Application of the Method in the Clinic. E. Engel.

70 *Anus in Vulvar Vestibule. (Anus vestibularis.) J. Pfeifer.

65. **Fluctuations in the Course of Nerve Syphilis.**—Benario has found records in the literature of seventy-six cases of neurorecurrences of syphilis under mercury or potassium iodid alone, and 150 cases under salvarsan treatment. He analyzes this material, tabulating the details and comparing the cases with and without salvarsan, the ophthalmologic findings and the findings in the auditory nerve. From all these data he deduces the conclusion that the neurorecurrences under salvarsan treatment, which Finger published as serious by-effects of salvarsan, in reality should be regarded as purely syphilitic, morbid phenomena. Hence it follows, he says, that Finger's assumption of a toxic neurotropic action on the part of salvarsan is untenable. The treatment of the neurorecurrences should be prompt and energetic. Expectant therapeutic treatment in presence of nervous manifestations of syphilis, he warns, is a very serious matter.

66. **Capacity of the Organism to Adapt Itself to Conditions.**—Katzenstein declares that this strange and interesting faculty of the organism which enables it to adapt itself to circumstances should be utilized in treatment more than is done at present. Nature's methods should be studied more closely and imitated. As an attempt in this line he reports experimental research on dogs, introducing a wisp of intestine or spleen into the animal's stomach. In every case it was promptly digested although the piece thus introduced into the stomach was not detached from the rest of the organ and was well nourished and retained its vitality until totally digested. A wisp of duodenum or of stomach tissue introduced through the wall of the stomach into its interior was not affected by the digestive juices and persisted unharmed. This difference in the fate of the wisps of tissue was evidently due to the presence in the stomach and duodenum walls of some substance which neutralized the action of the pepsin, that is, the walls of these organs must secrete an antipepsin. This suggests the possibility of an artificial production of antipepsin as a causal treatment of gastric ulcer. The adapting capacity of the organism is shown further in the work of the heart and in the bactericidal properties acquired by certain tissues which are liable to be contaminated with bacteria, such as the mouth and the peritoneum; they are able to destroy or tolerate without harm amounts of bacteria which would set up serious mischief if they were introduced into regions where contact with

bacteria is almost excluded, such as the interior of joints, the spinal cord and the brain. Another example of the adapting capacity which may prove a guide to treatment is the action of the adjacent muscles in forcing the blood along in the veins. The veins lack the muscular fibers of the arteries which permit the arteries to enlarge and take up the work of collateral circulation at need. The veins cannot grow in this way; they merely stretch and varices result except where the environing muscles exert such compression on the veins that the contents are mechanically forced along. He thinks that a hint may be discerned here for proper treatment and prevention of varicose enlargement.

69. **Transplantation of Ovaries.**—Engel has been experimenting on animals transplanting the ovaries from one to another, and he here reports two clinical cases of the kind. The sound parts of the ovaries removed from one patient were implanted on the uterus of a second patient whose uterine adnexa had been removed for disease. Both women are in good health and have shown no signs of the artificial menopause otherwise liable after ovariectomy. A number of authors, he states, have published results showing that the women were spared the effects of the artificial menopause when ovarian tissue was left almost anywhere in the body. Croom and Frank have each reported a normal delivery of a healthy child about four years after scraps of the ovaries from another woman had been implanted in the broad ligament. The prospects of retaining normal ovarian functioning are certainly much better, Engel remarks, when the ovaries are implanted directly on the uterus as in his two cases. The interval since has been only a few months.

70. **Anus in Vulvar Vestibule.**—Pfeifer states that the deformity which he calls vestibular anus is one of the rarest and most interesting defects in embryonal development. He knows of only thirty-four cases on record; only eleven of the women bore children; four were married without children. The case reported was that of a young married woman who had never menstruated until after her marriage. Only one of her ten brothers and sisters lived beyond the age of 5, but none was known to be deformed and the parents are healthy. In his patient Botallo's duct was patent. The muscles of the region of the vestibular anus were stout and ensured continence so that he did not attempt any operation, conditions being fairly satisfactory, but he warns of the grave danger liable from gonorrheal infection in such a case involving the rectum.

Deutsche medizinische Wochenschrift, Berlin

June 29, XXXVII, No. 26, pp. 1201-1248

71 Treatment of Pulmonary Emphysema. F. Jamin.
72 *Bronchoscopy in Young Children. G. Killian.
73 Paralysis in Guinea-Pigs Resembling that of Epidemic Poliomyelitis. (Ueber eine der Kinderlähmung des Menschen sehr ähnliche Erkrankung des Meerschweins.) P. H. Römer.
74 Sources of Error in Serodiagnosis of Echinococcus Disease. K. Henius.
75 *Operative Treatment of Suppurative Labyrinthine Meningitis. L. Stacke.
76 Physiologic Action of Light in the Kellogg Light Bath. S. Brustein.
77 Two Cases of Obstinate Fever in Third Stage of Syphilis. A. Schegimann.
78 *Physiology and Pathology of Digestion. (Verdauung.) M. Cohn. Commenced in No. 25.
79 Successful Mobilization and Suture for Three and One-Half-Inch Gap in Urethra. P. Sick.

72. **Bronchoscopy for Small Children.**—Killian reports nineteen cases, some from his own experience, in which after removal of the foreign body the dyspnea increased after a longer or shorter interval and intubation or tracheotomy became necessary a few hours to a few days later. He is convinced that this occurrence is even more frequent than is shown by the records, and his experiments on the cadaver have revealed the explanation, namely, that the subglottic passage is much narrower than generally supposed and the foreign body, especially if it is one that is forced back and forth by the breath, is almost certain to irritate this space. The diameter of the subglottic space is not over 3.5 mm. in a child 8 months old, 45 cm. in height, while at 2 years the diameter is only 6.5 mm., the child 80 cm. tall, and 7 mm. at 3 years, 94 cm. tall. At the age of 7 the diameter is 8 mm., the child 120 cm. tall; at 10 the diameter is 9.5 mm.—these are averages of 22 fresh cadavers. Analysis of the nineteen cases reported shows that the size of the tube used in bronchoscopy was too large for the diameter of the subglottic space, judging from the child's age. In addition to this inevitable injury, there must have been trauma from the introduction of the tube, especially when the foreign body was a bean or similar substance that had swollen, so that there was great difficulty in extracting it, which had to be done in fragments. The longer the interval before removal when a smooth body like a bead had been propelled by the breath again and again against the glottis the greater the inflammation. Killian's study of the subject shows that any pronounced swelling in the subglottic region should contra-indicate bronchoscopy from above. In a recent case of this kind the subglottic swelling would certainly have become dangerously severe if he had introduced the tube, so he did not attempt it but easily removed the small pebble through a tracheotomy opening, with the further advantage that the subglottic swelling promptly subsided spontaneously, so that the cannula could be removed the very same evening. Upper bronchoscopy is also contra-indicated when the foreign body is a bean, as these swell so quickly and so much that they cannot be extracted through the larynx.

75. **Labyrinthine Meningitis.**—Stacke comments on the good prospects for operative treatment in meningitis propagated from the middle ear by way of the labyrinth. Since we have learned to detect functional disturbances in the labyrinth, especially in the vestibule, it is no longer difficult to diagnose these cases in their incipiency, detecting them in the phase of suppuration in the labyrinth, the diagnosis facilitated by the findings on rachicentesis. The latter shows whether the dura will have to be incised. A deep abscess may form in the cerebellum instead of diffuse meningitis developing, in which case the incision will have to be carried into the cerebellum. Alexander has reported a case thus cured, Wittmaack two, and Stacke here reports the details of another. The last patient was a woman of 34, cured by the operation, which put an end also to the chronic ear affection. Stacke emphasizes the importance of lumbar puncture in ear disease, the findings not only revealing intracranial otitic complications by the composition of the fluid, but also by the pressure. With repeated lumbar puncture he has been able to detect and operate for an intracranial complication before serious harm had been done, and also to refrain from operating in dubious cases in which the course proved the correctness of the conclusions drawn from the normal cerebrospinal fluid. He has never witnessed the slightest harmful by-effect from lumbar puncture, and it gave the clue to successful treatment in the case reported; the cure has been complete for two years to date. Vomiting is one of the gravest symptoms when it comes on with a suppurative ear disease, especially when accompanied by vertigo, fever or intense headache. Rachicentesis should be done at once. He regards the radical operation as indicated with these symptoms even when the fluid is clear, but if the severe symptoms do not promptly and permanently subside, the labyrinth should be operated at once, and repeated lumbar puncture will permit an oversight of conditions as the cure progresses. Success depends on the promptness of the intervention.

78. **Physiology and Pathology of Digestion.**—Cohn has obtained very instructive findings by having the patient swallow two small capsules filled with bismuth and then examining him with the Roentgen rays. The ordinary bismuth technic distends the stomach and distorts the actual picture, while one or both of the bismuth capsules float on top of the stomach content and may be arrested at a point much higher than the stenosis is apparently located by other technics. The higher the stenosis the more difficult the operation, as the point is hidden by the ribs. Even after the ordinary bismuth suspension technic has been applied, it is a good plan to follow it with the bismuth capsules, as this may confirm the enlargement in connection with spastic stenosis and thus differentiate a pyloric ulcer. He gives radiographs of a number of typical cases, showing various unexpected features of the physiologic processes in the intestines; among them is one that

shows three segments of the large intestine contracted concentrically at brief intervals, so that the shadow is like that of three strings of beads. He explains this tonic contraction in part as a process to squeeze the fluid out of the feces—part of the physiologic task of the large intestine. He ascribes great importance to the intestinal gases as a factor in the movements of the feces, regarding the gases accumulated at the splenic flexure as a kind of buffer, so that the splenic flexure may be regarded as the first natural sphincter. Any exaggeration of this normal sphincter function would lead to distention of the large intestine, the meteorism possibly so severe as to induce distention ulcers. The gases accumulate mainly on the left side and are liable to push the stomach far over to the right, stretching it into queer shapes. This may explain some of the puzzling radiographs of the stomach. He found extensive accumulations of gas in the splenic flexure with pathologic conditions in the left chest, some inflammatory affection there arresting by reflex action the excursions of the diaphragm on that side. The accumulated gases at the splenic flexure push up the paralyzed diaphragm and may alter the position of the heart and large vessels, throwing light on certain hitherto puzzling functional disturbances. In examining with the Roentgen rays it must be remembered that the gases seek always the highest point, and thus they change about as the person lies or stands. In conclusion, Cohn urges physiologists to pay greater attention to research with the Roentgen rays in this special field of work. His previous communication on this floating capsule test of stomach functioning was summarized in THE JOURNAL, Nov. 5, 1910, page 1688. One of the capsules contains half a gram and the other a gram of bismuth, so that one will float and the other sink to the bottom, or both are given of the same weight so that the two will float side by side. When they are then seen one above the other it shows that the lumen has become contracted, so that there is only room for one at a time.

Jahrbuch für Kinderheilkunde, Berlin

June, LXXIII, No. 6, pp. 675-790

80 *Cerebral Infantile Paralysis. (Zur Klinik und Pathologie der cerebralen Kinderlähmungen.) A. Lindemann and F. v. Marenholtz.
81 *Splenic Anemia in Children. S. Ostrowski.
82 *Roentgen-Ray Examination of Cicatricial Stenosis of the Esophagus in Children. H. Flesch and I. Peteri.
83 Chvostek's Sign Suspended on Approach of Convulsions. (Facialisphänomen und eklamptischer Anfall.) W. Stoeltzner.
84 *Intercurrent Vaccination Aborts Whooping-Cough in Infants. (Zur Behandlung des Keuchhustens im frühen Säuglingsalter.) Mehnert.

80. **Cerebral Infantile Paralysis.**—Lindemann and Marenholtz report four cases of cerebral paralysis in its initial stage in infants with necropsy findings. They belonged to the class of vascular lesions with hemorrhage in the brain or meninges or subdural space resulting from trauma affecting the skull or other mechanical injury before, during or after birth, and checking the growth of parts of the brain. Cerebral paralysis resulting from actual malformation in the germinal tissue is comparatively rare, while encephalitic processes due to various infections or intestinal affections are more common. This classification of cerebral paralysis into these three groups according to origin is more rational than classifying them by symptoms which may be common to all forms.

81. **Splenic Anemia.**—Ostrowski reviews the clinical picture of splenic anemia as he has observed it in ten infants between 1 and 3 years old. All had been fed early with cow's milk, and there was a history of diarrhea in all. The children were under weight and pale and had rachitis to a greater or less extent. The spleen was enlarged, but the liver was of normal or nearly normal size, and the lymph-nodes were not enlarged. He is convinced from these experiences and study of the literature that splenic anemia is a secondary condition, generally following some catarrhal affection of the digestive tract in undernourished children. The changes in the red corpuscles are typical of splenic anemia. In differentiating it from leukemia, note the lack of noticeable leukocytosis and the changes in the lymph-glands with the comparatively small proportion of myelocytes in the blood. The prognosis of splenic anemia is grave, he adds, saying that treatment seems to be necessarily restricted to iron, arsenic and the Roentgen rays.

82. **Roentgen-Ray Examination of Stenosis of the Esophagus in Children.**—Flesch and Peteri comment on the shocking frequency in children in Austro-Hungary of corrosion of the esophagus from drinking lye. At the Stefanie hospital at Budapest there have been in the last nine years 516 cases of acute disturbances from this cause, and 267 cases of cicatricial stenosis of the esophagus, all the result of leaving a solution of lye ready to be used in washing, within reach of young children. It has proved possible to examine the condition with the Roentgen rays by having the children swallow a soft porridge containing 30 or 40 per cent. of oxid of zirconium. This substance is insoluble in acids, strong alkalies, etc., and seems to have no action when injected subcutaneously into animals so that no toxic action need be feared from it; for Roentgen work it has several advantages over bismuth. As the child swallows each mouthful of the porridge, the progress of the mouthful down the gullet can be watched with the Roentgen rays, and the regions where it passes along smoothly and where it seems to be arrested or makes its way slowly are marked and compared. By this means it has proved possible to detect multiple strictures, and treatment applied on the knowledge thus obtained has proved remarkably successful instead of the blind, haphazard work without radioscopy. The details of twenty cases are given to show the workings of the method. Investigation in this way can be applied during the first six weeks after the injury when it is still dangerous to introduce a sound.

84. **Vaccination in Treatment of Whooping-Cough in Infants.**—Mehnert writes from Jamestown, Cape Colony, to expatiate on the remarkable way in which whooping-cough disappears in young infants after an intercurrent vaccination. The children must be protected from renewed whooping-cough infection, and if not seen until the stage of venous congestion in the brain has been reached, venesection may be advisable in addition to the vaccination. The effect of the vaccination does not seem to be modified by the presence of the pertussis. He is so convinced of the efficacy of vaccination as a means of aborting pertussis, that he suggests the advisability of postponing the vaccination of infants until they are a year or so old, so as to utilize its dual action in case of an epidemic of whooping-cough.

Medizinische Klinik, Berlin

June 25, VII, No. 26, pp. 991-1030 and Supplement

85 *Strabismus and the General Constitution. (Schielen und Gesamtveranlagung.) F. Krusius.
86 *Treatment of Acute Pancreatitis. H. H. Dreesmann.
87 *Two Cases of Febrile Iodin Poisoning. (Jodfieber.) A. Konried.
88 Dupuytren's Contracture as Trophic Element in Clinical Picture of Tabes. G. Stiefler.
89 Advantages of Tuberculin in Treatment of Tuberculosis of the Kidneys. (Weitere Erfahrungen über die specifische Therapie der Nierentuberkulose.) W. Karo.
90 Bacteria Content in Sputum, Blood and Stool with Pulmonary and Intestinal Tuberculosis. (Vergleichende Untersuchungen des Bakteriengehalts im Auswurf, Blut und Kot bei tuberkulöser Lungenschwindsucht und tuberkulöser Darmerkrankung.) W. Boer.
91 Pathogenesis, Diagnosis and Treatment of Polyneuritis. R. Bing.

85. **Strabismus and the General Constitution.**—Krusius has found in his experience that children with squint were either mentally backward or exceptionally bright and ambitious—each a psychopathic extreme, or there were other signs that the children were below par. A latent tendency to squint may be observed in such children which may develop into actual squint after some fright, overexertion or infectious disease. He has witnessed the spontaneous cure of squint after removal of polyps in the nose and after a course of hygienic measures tending to restore normal balance in the physical and mental development. The general practitioner should be on the watch for the tendency to squint and should oversee the child's development, not letting the parents foster the ambition of the nervous child, while seeking to arouse it in the apathetic. Tact, patience and skill are necessary for the task, but this alone goes to the root of the matter, and by removal of the underlying cause puts an end to the disturbances.

86. **Acute Pancreatitis.**—Dreesmann reports nine additional cases since his last publication on this subject. Even when operative treatment is being considered, internal measures should not be neglected. Chief among these are the dietetic, restricting the patient to a strict antidiabetic diet, the advantages of which have been proved beyond question by his own and others' experience. As a further means to reduce the secretion of pancreatic juice, sodium bicarbonate by the mouth during meals has been recommended, but he does not think it necessary unless an operation is impending. Sedatives and stimulants are indicated, but saline infusion has not yet proved its efficacy in acute pancreatitis, and Pewsner's research seems to indicate that large amounts of salt are liable to do harm. Complete rest in bed is necessary, with ice at first and later warmth, guided by the patient's feelings. Personally, Dreesmann has had the best results with superheated air, not going above 80 C. Rinsing out the stomach may also be useful. In conclusion, he warns that patients who have passed through an attack of pancreatitis should be kept under supervision for several years, as the acute pancreatitis may recur or may pass into a chronic phase—the conditions are much the same as with appendicitis; and prophylactic measures are equally indicated.

87. **Iodin Fever.**—In Konried's first case a man of 65 with signs of amyotrophic lateral sclerosis was given potassium iodid and his temperature soon rose to fever heat. The iodid was discontinued, after which the temperature subsided to normal, but rose again each time iodin in any form was given him except by percutaneous cataphoresis of iodin salts. The patient felt well otherwise during the recurring fever, with good appetite and sleep, and the heart and lungs normal, except for a slightly increased pulse-rate and respiration. The thyroid was persistently normal. In the second case a woman of 33 presented the clinical picture of acute circumscribed thyroiditis on two occasions, and it was learned that each had followed the local application of an iodin salve without medical advice; the thyroid was a little enlarged.

Münchener medizinische Wochenschrift

June 27, LVIII, No. 26, pp. 1385-1432

92 Research on Chemical Functioning of the Cells. (Methode zum Studium der chemischen Zellfunktionen und deren Resultate.) M. Hahn.
93 *Pharmacologic Bases for Intravenous Epinephrin Therapy. W. Straub.
94 Sugar Puncture. (Zur Kenntnis der Piqure-Glykosurie.) E. T. v. Brücke.
95 Local Anesthesia for Operations on the Kidneys. A. Löwen.
96 *Influence of Temperature on the Wassermann Reaction. H. Guggenheimer.
97 Treatment of Exstrophy of the Bladder. (Ueber Blasenektopie.) E. Rehn.
98 *Pancreas Treatment in Diabetes. E. Leschke.
99 Photographing Special Features of Diseases in Children. (Zur Technik der Photographie von Krankheitserscheinungen im Kindesalter.) J. Ibrahim.
100 Spontaneous Delivery with Contracted Pelvis. (Spontangeburten bei engem Becken.) O. Jaeger.
101 Fifty Years of Research on Aphasia. P. Marie.
102 *Medical Impressions of America. F. Lange.

93. **Continuous Intravenous Infusion of Epinephrin.**—Straub reports research which confirms the assumption that epinephrin has no cumulative action. Its action, further, is exclusively local, that is, only on direct contact. This teaches that the continual infusion of a weak solution of epinephrin may prove a useful measure in therapeutics. It is thus possible to send the solution continuously into a vein and thus keep up the blood-pressure permanently while this is being done—the effect being dependent on the concentration of the solution, not on the absolute amount of epinephrin infused. It is probable that epinephrin is destroyed with peculiar rapidity; it vanishes from the blood completely and as rapidly as its action subsides.

96. **Influence of the Temperature on the Wassermann Reaction.**—Guggenheimer found in some cases a negative reaction at room temperature when the serum gave a positive reaction at the freezing-point. He could not detect any special laws regulating this in the twenty cases among the 623 tested in which this paradoxical behavior of the reaction was observed. It suggests, however, that in dubious cases it might be wise to test the serum at both temperatures.

98. **Pancreas Therapy in Diabetes.**—Leschke's experimental research shows that fresh pancreas extract increases the elimination of sugar in diabetic persons and animals, and also induces glycosuria in normal animals, with a toxic and even fatal action.

102. **Medical Impressions of America.**—Lange of Munich pays high tribute to the orthopedists of America and the many points in which they lead the world. He describes his visit here as guest of the annual meeting of the Orthopedic Association in Washington last year, and extols a number of features of medical education and institutional work. He remarks that the students of a good school like Harvard and Johns Hopkins are much better informed and better skilled in surgery and orthopedics than the corresponding students at the German universities—stating that he had ample evidence himself of this. Even in most of the other branches, he continues, according to the judgment of professors who have taught both at German and American universities, the average American student is superior to the German, and he thinks that this fact should cause the Germans to pause and ponder.

Wiener klinische Wochenschrift, Vienna

June 29, XXIV, No. 26, pp. 927-962

103 *Microscopic Examination of the Bile in Diagnosis. E. Petry.
104 Influenzal Suppurative Meningitis. E. Prasek and T. Zatelli.
105 Bismuth Paste in Treatment of Cold Abscess. E. G. Beck.
106 Cancer of Common Bile Duct. (Zur Chirurgie des Choledochuskrebses.) Spindler.

103. **Microscopic Examination of the Bile for Diagnostic Purposes.**—Petry has found microscopic fragments of gall-stones in the bile in cholelithiasis, and thinks it possible that this means of investigation may render valuable service. It is easy to see from the characteristics of the microscopic stones whether they are minute, independent concrements or splinters knocked off from the rubbing together of large stones. He obtains fresh bile for the purpose by siphoning out the stomach content half or three-quarters of an hour after the patient has ingested in the morning, fasting, 200 c.c. of olive oil at room temperature. Boldyreff announced in 1904 that oil taken in this way causes the pylorus to open and bile and pancreatic juice then flow into the stomach. Volhard applies this method to obtain pancreatic juice for examination, and Weber in 1908 found it useful to determine the presence of typhoid bacilli in the bile. Petry was able not only to detect the presence of microscopic concrements in the bile in cholelithiasis, but he found characteristic liver cells in the bile obtained in this way in six hares with chronic phosphorus poisoning. This suggests the possibility that liver affections may be diagnosed in this way in dubious cases. Since last summer Petry has been testing with the oil breakfast every patient suspected of cholelithiasis. In the first four cases nothing pathologic could be detected in the bile, but in the fifth case the bile contained minute independent concrements exactly like the large gall-stones found at the laparotomy. He gives illustrations of the microscopic findings in various cases, and discusses the differential significance of pathologically altered leukocytes in the bile and also of cholesterin crystals.

Zentralblatt für Chirurgie, Leipsic

July 1, XXXVIII, No. 26, pp. 889-920

107 Tincture of Iodin Sterilization. (Ueber Grossich's Jodtinkturdesinfektion postoperativen Ileus, Ikterus und Hautnekrosen.) R. Bertelsmann.
108 Behavior of Intestine in Respect to Digestive Activity of the Gastric Juice. (Verhalten des Darmes gegenüber der Verdauungstätigkeit des Magensaftes.) P. Fiori.
109 Care of Stump After Resection of Stomach. (Zur Stumpfversorgung nach Magenresektion.) E. Polya.

Zentralblatt für Gynäkologie, Leipsic

July 1, XXXV, No. 26, pp. 921-952

110 Importance of Systematic Collecting and Manifolding of Photographs of Clinical Cases for Teaching Purposes. (Zur Hebung des klinischen Anschauungsunterrichts.) J. Reich.
111 Operative Cure of "Vaginal Atresia of the Anus." E. Pozsonyi.
112 Influence of Depression of Left Half of Pelvis on Type of Presentation. (Ursache der verschiedenen Schädellagen.) R. Drenkhahn.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 25, XXXII, No. 76, pp. 803-818

113 Management of Abdominal Contusions. G. Tomaselli.

June 27, No. 77, pp. 819-826

114 Operations for Spina Bifida and Occipital Hydrocephalus. E. Chiavellati.

Policlinico, Rome

June 25, XVIII, No. 26, pp. 809-840

115 The So-Called Giant Flagella of Bacteria. (Sopra le cosiddette ciglia giganti o composte dei batteri.) G. Rocchi.
116 *Rhizotomy in Treatment of Tabes. (L'operazione di Mingazzini-Förster nella cura della tabe.) E. Tramonti.
117 Intermittent Fever in Cystitis in Young Children. V. Fusco.

116. **Rhizotomy in Treatment of Tabes.**—Tramonti claims for his compatriot, Professor Mingazzini of Rome, the priority for suggestion of the operation of section of the posterior spinal nerve roots for the relief of pain, but this operation is generally known now as the Förster operation, as Förster of Breslau published it as a "New Operative Method of Treating Spastic Paralysis" in 1908. The operation, however, is listed in the later American dictionaries as Dana's operation (C. L. Dana, New York), "resection of the posterior spinal nerve roots for neuralgia, athetosis and spastic paralysis." Mingazzini's recommendation of it for tabes was made at a meeting of the Accademia Medica of Rome, March 26, 1899. Förster ascribes the first operation of the kind to Abbe in 1888.

Riforma Medica, Naples

June 26, XXVII, No. 26, pp. 701-728

118 Neurasthenia. L. Bianchi.
119 Multiple Sarcomas in Small Intestine. C. Paveslo.

Hospitalstidende, Copenhagen

May 10, LIV, No. 19, pp. 505-536

120 *Phlegmonous Gastritis. J. Jensen. Commenced in No. 18.

May 17, No. 20, pp. 537-560

121 *Animal Remedy for Scorbutus in Greenland. (Animalske antiscorbutica i Grønland.) A. Bertelsen.
122 Importance of the Wassermann Reaction in Rhinology. O. Strandberg.

May 24, No. 21, pp. 561-584

123 *Tuberculin Treatment. (Nogle Forsøg med Tuberkulinbehandling.) O. Helms.

120. **Phlegmonous Gastritis.**—Jensen gives the detailed histories of ten Danish cases, and has found 121 cases on record in the literature elsewhere. The diagnosis of the affection, which used to be impossible, has been made during life in a constantly larger proportion of cases. As a rule, the phlegmonous gastritis is supposed to be typhoid fever, notwithstanding its more sudden onset and abrupt rise in temperature. Meningitis was diagnosed erroneously in two cases, and Löwenstein ascribed the disturbances to a concomitant erysipelas. In one of Jensen's cases they were ascribed to septicemia from a casual trauma. The gastric symptoms generally predominate, the vomiting being more incessant and violent, he says, than with any other affection. The vomit may be purulent, and this gave the clue in Leube's case. There is not so much systemic disturbance or such high fever with other stomach affections likely to be confounded with it. The pain in the stomach is intense and sudden, but it varies with intermissions. The pain, tenderness and spasm are at first above the umbilicus, but gradually spread downward as the peritoneum becomes involved. In one of Jensen's cases the local pain seemed to be limited to the gall-bladder, whence it radiated to the epigastrium and abdomen, but there was no jaundice, and the frequent eructations and hiccup in connection with the slight local tenderness and severe general disturbances suggested more a retroperitoneal lesion. The clinical picture resembles that of subphrenic peritonitis after perforation of a gastric ulcer. Acute hemorrhagic pancreatitis is seldom accompanied by such high fever as the phlegmonous gastritis. The patient may die during the first two or three days, or there may be a remission of symptoms until the fatal peritonitis develops. Seven writers have reported recovery after vomiting up of pus, but the ten Danish cases all terminated fatally in from forty hours to eleven days. Mikulicz operated successfully in one case, as also Bovee in a woman near term, while a number of operative attempts are on record. In several of the ten Danish cases the finding of circumscribed peritonitis at necropsy showed that operative intervention in time might have saved the patients; they died on the fifth or eighth day. In two of his cases there was a cancer in the stomach, and the phlegmonous gastritis developed suddenly after introduction of a stomach sound. In another the sound had been introduced to aid in feeding an insane woman, but this was followed at once by the signs of purulent gastritis with death in two days.

121. **Animal Remedy for Scorbutus in Greenland.**—Bertelsen states that scorbutus is prevalent in Greenland, the very name Eskimo meaning "eaters of raw meat." But, he adds, the natives have empirically found a remedy for the scurvy, namely, chewing the skin of the narwhal, the unicorn-whale. He describes research, with illustrations, showing that the skin of this fish contains a remarkable amount of glycogen, thus supplying sufficient quantities of a carbohydrate to cure the scorbutus. The walrus liver also contains much glycogen.

123. **Tuberculin Treatment.**—Helms reviews his experiences with different kinds of tuberculin in 300 patients with various stages of pulmonary tuberculosis. While the results were not very striking, yet they encourage further work in this line with "old" tuberculin, he declares, and suggests that the treatment need not be feared even if it does occasionally induce a little reaction.

Hygiea, Stockholm

June, LXXIII, No. 6, pp. 673-783

124 Mercuriol-Oil in Syphilis. (Om merkuriol-oljans indikationer och dosering samt om kvicksilfverintoxikation och angina resp. stomatitis ulcero-gangrænosa.) M. Möller.
125 *Experiences with Cataract Operations. (Erfarenheter angående linsens aflägsnande ur ögat.) K. Bjerke.
126 *Combined Action of Sodium Iodid Taken Internally and Ozone Inhaled in Local Treatment of Tuberculosis. ("Fallet Ester.") S. A. Pfannenstill.

125. **Experiences with Cataract Operations.**—Bjerke reviews twenty years of ophthalmologic work, especially with cataract. One of his patients had senile delirium and tore off the dressings again and again after the cataract had been removed, but without impairing the success of the operation. In another case he successfully removed a cataract from each eye of a man who had been blind from this cause since his tenth year.

126. **The Two-Way Route in Local Treatment of Tuberculosis.**—Pfannenstill here reports the final outcome of an especially severe case of pulmonary tuberculosis in a woman with inherited syphilitic taint whose extensive throat lesions healed completely under the combined action of sodium iodid taken internally and ozone inhaled. Nascent oxygen was formed when the ozone came in contact with the sodium iodid attracted from within to the lesion. (His previous communication on this method of local treatment was summarized in THE JOURNAL, July 16, 1910, page 264.)

Ugeskrift for Læger, Copenhagen

June 8, LXXIII, No. 23, pp. 823-870

127 The Tasks for School Hygiene. (Skolehygiejnens Opgaver i Nutiden.) P. Hertz.
128 The Use of Sulphuric Acid in Manufacture of Cereals. (Om Præparation af Levnedsmidler, specielt Byggryn, med. Svovlsyrling.) A. Hansen.

Books Received

GYNECOLOGY. Edited by Emilius C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School, and C. von Bachellé, M.S., M.D., Assistant Professor of Obstetrics, Chicago Policlinic and College of Physicians and Surgeons. Volume IV. Series 1911. The Practical Medicine Series. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Cloth. Price, $1.25. Pp. 232, with illustrations. Chicago: The Year-Book Publishers, 1911.

MEDICAL MISSIONS A DEMONSTRATION OF GOD'S LOVE. ANNUAL REPORT OF THE HANYANG MEDICAL MISSION IN CONNECTION WITH THE AMERICAN BAPTIST FOREIGN MISSION SOCIETY. In Charge of Rev. George A. Huntley, M.D., and Miss Emilie Bretthauer, M.D. For the Year Ending Dec. 31, 1910. Paper. Pp. 19, with illustrations.

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